Museums: A Beacon for Change for Heritage Buildings.

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School of Architecture
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We certify that we have read this Doctorate Project and that, in our opinion, it is satisfactory in scope and quality in fulfillment as a Doctorate Project for the degree of Doctor of Architecture in the School of Architecture, University of Hawai'i at Mānoa.

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I would like to dedicate this to my family that has supported me throughout this entire process.

Contents

Abstract

The integrations of additions to heritage buildings is a highly contentious and ongoing debate that transcends the field of architecture and preservation globally. Generally, experts in the field agree that an integration will change the built environment. The contention lays in how it should change. Historical architects such as Steven W. Semes have made the argument that the changes while necessary should be gradual. While others like Daniel Libeskind have advocated for additions that embody new culturally relevant ideas. This dissertation contributes to the conversation by underscoring the point that the debate should not be about defined lines on what is/is not appropriate, but rather that additions need to be a product of the community's values and that every addition should engender something new that links it to a time and place. While this dissertation acknowledges the open-ended nature of this debate, it proposes a possible approach to the integration of additions to heritage buildings. This dissertation argues that the approach to adding to a heritage building should be structured around the needs of the community, the respectful integration with the existing building, and the inventive projection of a culturally and aesthetically sustainable addition.

Qualitative analysis has been selected as the research methodology. Various approaches to integrating substantial additions to heritage buildings have been analyzed using nine detailed case studies on museums that occupy heritage buildings, found throughout the world. The case studies explore the consequences of those decisions on their immediate community; additionally, each case study highlights the building's architectural evolution. The case studies reveal the underlying issue that adding to an existing building is highly subjective, for there are numerous variables that contribute to every design decision. Additionally, the case studies illustrate that while there are benefits to the sustainable integration of additions to heritage buildings, there are also many challenges.

The objective of the dissertation is to add to the conversation of the future of heritage buildings, by highlighting the fact that the future of the built environment cannot rest in a static set of guidelines. There needs to be a dialogue with the community and the developer on how to develop an innovative but sustainable approach to integrating an addition to a heritage building.

INTRODUCTION

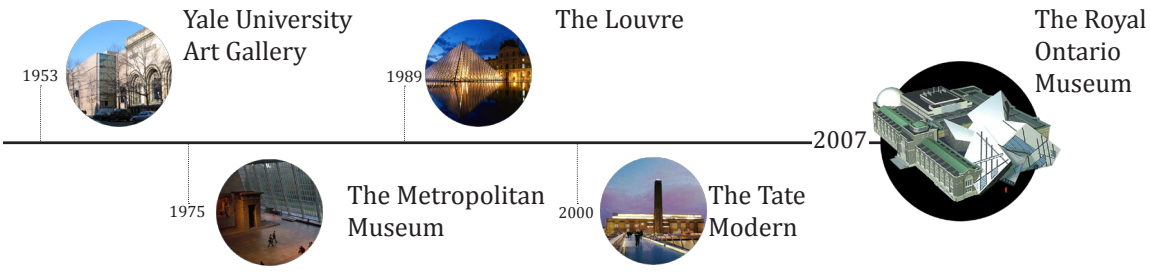
Architectural additions make a significant demonstration of the history of global architecture, and each addition tells its own story. Additive architecture lets historians and archeologists of the future read today's buildings just as historians and archeologists have unraveled the stories of the Ottoman Empire in Spain, technological growth in the world's Cathedrals, Spanish dominance over Inca architecture, and the addition of minarets to the Hagia Sophia.

According to architectural scholar Stewart Brand, additions to heritage buildings happen to "low-road" structures, such as industrial buildings and modest homes that people commonly feel they can change to suit their needs. Brand points out that "high-road" buildings, such as castles, mansions, and civic buildings, are typically not seen as buildings that are free to change with evolving aesthetics.[1]

This dissertation will argue that even prized architectural buildings can be added to when the need arises. Examples; such as the Louvre, the Royal Ontario Museum (ROM), and the Moritzburg Castle have demonstrated that "high-road" buildings can be successfully added to. Such "high-road" structures will likely have strict criteria on how an addition should be integrated, but that criteria should not define the aesthetics of the addition. While respect for the existing building is critical, the aesthetics of the past built environment and the aesthetics of present generations should be able to evolve together into the future.

1 Stewart Brand, *How Buildings Learn: What happens after they're built* (New York: Penguin Books, 1995). 24-51

Figure: 1. Below is a time line of the evolution in the ideologies of hybrid architecture. From left to right: Yale University Art Gallery (1953), Metropolitan Museum (1873), Louvre Pyramid (1999), Tate Modern (2000), and the Royal Ontario Museum (2007). Each successive example illustrates how additions are becoming successively more pronounced and distinctive from the heritage buildings that they are added to.



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Arguably, it is important to revive the age-old practice of stacking new buildings (that use the resources, technologies, and aesthetics of the period) on top of old buildings that define the urban identity of an area's past. This stacking of new buildings on old plays a critical role in defining the urban identity of a built environment by retaining buildings that define a city's past and by developing new buildings that will define a city's future. The success of this practice can frequently be seen in older cities such as Venice.

When faced with aging building stock, preservationists need to embrace strategies that both encourage the retention of heritage buildings and address the changing needs of modern communities. The aim of this study is to answer how heritage buildings can be retained, while promoting the development of contemporary buildings. Some museums, the stewards of our past and the cultivators of our future, have already answered this question. For nearly three decades, museums have been integrating heritage buildings with substantial and architecturally innovative additions. The success encountered by these museums is a model for the future growth of the built environment.

Museums address how aging urban areas can be encouraged to grow in a sustainable way that retains heritage buildings and urban identity. Drastic change is the nature of the world; there is a need to embrace the ephemeral quality of the built environment by celebrating change. The streets should look different when the next generation of people walks along them, and yet revered buildings should still be identifiable. Though landmarks are necessary, it is not necessary to treat entire districts as though they must act as one large "landmark."

The section, "Preservation Issues," discusses the history of preservation and the fact that preservationists should not see these advances of hybrid architecture as a destructive form of growth. Modern architectural interventions can be an efficacious tool for the renewal, promotion, and celebration of heritage buildings. It is a conundrum that after decades of fighting the battle to protect heritage buildings, there are those within the preservation community, who exhibit a stifling resistance to change, though preventing such change disrupts the natural course of urban development. An example would be those within the preservation community who have unwaveringly fought against the numerous efforts to develop the Whitney Museum.

During a time that diversity is encouraged at all levels of society, preservationists are leaving many cities fragmented and set up into districts not based upon ease of use or accessibility, but strictly on styles of architecture. The built environment in its natural progression becomes a mosaic of archetypes, which is the beauty of old cities. In the 1950s and 1960s many buildings were torn down rather than reused because of the relative ease of demolition. This overhaul of the existing built environment was done in an effort to revive the city. Once the old cities were leveled it quickly became apparent that often the intrinsic value of the place was lost in the rubble, and would not be easy to recreate. The demolition of so many older places led to the preservation movement and its defining case laws like Penn Station Co. versus New York City, which will be covered in this section.

However, thirty years later with preservation practice established there is a need to revisit the growth and evolution of heritage buildings, as museums have done. Museums were certainly not the first buildings to have significantly contrasting additions. Nevertheless, the public nature of these museums has brought this marriage of old and new to the public eye. The rehabilitation of historic buildings has become increasingly accepted in recent decades. Ordinary buildings become extraordinary buildings by means of new additions while retaining their historic integrity and value. These kinds of additions bridge the preservation of a cultural past and a current social identity. With technological advancements today's societies enjoy a widened capacity to appreciate the integration of a region's culturally rich past and its vibrant developing present. The misconception that for an addition to be a successful form of preservation it has to be a contemporary version of the original building, whether it be in material, form, or scale should be corrected. The section, "Annexation: A Historical Evolution in Museums," analyzes the fact that additions could be celebrated while honoring the integrity of their "parent" structures. The analysis has been broken down into four points: pre-museum, moving on in, alternative spaces, and hybrid architecture. Each of these points shows how museums develop existing buildings and reintroduce heritage buildings to the public.

The discussion on "Cultural Urbanism" addresses the social and political factors resulting in the growing prominence of the ways in which some cities have incorporated new iconic buildings with heritage buildings so that the trajectory of a place is seen in contrast to its history. Societies are becoming more aware of the value of retaining the

cultural identity of a place and of the need to manage a sustainable form of growth. This section also touches on the economic benefits that cities often experience as a result of the "Bilbao Effect."

The phenomenon of the "Bilbao Effect" has inspired the exploration of new architectural forms and innovations to be used as a trigger for the cultural and urban rejuvenation of an ageing region. Nine case studies will be reviewed to gain insight on design elements found within additions inspired by the "Bilbao Effect," and to understand why certain approaches were taken. The museum case studies will cover a range of the most prominent forms of additive growth that epitomize hybrid architecture. The support of the public and donor resources these museums have been able to fund successful urban catalysts of avant-garde additions integrated with old buildings. I. M. Pei's intervention to the Louvre in Paris, for instance, served as a catalyst of growth and rebirth. This form of architecture allows patrons the opportunity to discover and become aware of culturally significant intricacies identified between old and new archetypes.

The museums covered in the proposed but never realized section are examples of prospective additions that had a lot of public support, but were fatally plagued with delays largely due to preservation resistance, which often resulted in additional fees, construction delays, and lawsuits.

The section, "Rethinking Preservation Guidelines," covers the exacerbated consumption of land, which can be mitigated by the further development of existing urban centers. Museums are setting a precedent illustrating that there are responsible ways to grow physically, culturally, and sustainably. As preservation was a reaction to the major loss of heritage buildings in the 1960s, additive architecture is a reaction to depleting natural resources, and the need to encourage architectural diversity. Additionally, this section will identify parts of the Secretary of Interior Standards (SIS) and the Venice Charter that need to be revisited as they pertain to additions. Current preservation practice suggests that an addition to a heritage building should be small, visually unobtrusive, should not obscure any of its historical features, and in keeping with the existing spatial relationship of the surroundings. These are the very guidelines that many successful additions to museums do not meet. Addition should be enduring tributes to human creativity and innovation. The museums covered in this dissertation are examples that celebrate their heritage buildings and give them the opportunity to function in energized communities.

Overall, this dissertation addresses three primary points: first, the necessity of reusing existing buildings; next, the value of having changes made to the building that reflect the period in which the changes occurred, and finally the importance of integrating past and present in a way that strengthens each of the buildings.

This research is not motivated by the fear of having old buildings neglected, but by the belief that such buildings could evolve in a sustainable manner. Buildings are too large, too important, and too many to be treated as nostalgic mementos. Healthy cities are culturally and socially diverse, and must grow to meet the needs of their diverse communities.

At the conclusion of this study, an intervention design for the Whitney Museum is presented that exhibits successful architectural and spatial features found while conducting this research. The Whitney Museum addition project was selected to help dispel prejudice against designing avant-garde additions to heritage buildings, as well as to express that increasing building density through rooftop additions is a viable means of growth. Hybrid architecture is significant for three reasons: it intends to meet the needs of the existing building users; it often retains historically significant features, and, as a result of avoiding additional land use, rural lands are maintained and urban landscapes are densified and better able to reflect regional cultural changes.

The aim of this dissertation is to clarify that the advent of technologies has shifted the role of a historic building from being a static cultural artifact, into becoming a vital medium for future urban growth. This research will advance an existing body of knowledge by identifying how avant-garde additions to heritage buildings can contribute to the successful preservation of a museum's historic fabric.

Literature Review

As noted in the introduction the aim of this dissertation is to demonstrate, using nine case studies, that avant-garde additions integrated with heritage buildings is a healthy and sustainable future for the built environment. The union of the past with the present will enable the perpetuation of the historical urban fabric and the projection of the future of a place as was done with museums such as the Royal Ontario Museum. While there are proponents for the integration of avant-garde addition to heritage buildings, they typically indirectly address the topic of preservation. Such examples would be architects such as Daniel Libeskind, Rem Koolhaas, Herzog and de Meuron, and others. Historians have written the majority of the existing body of knowledge on growth and evolution of heritage buildings.

Books such as *How Buildings Learn: What Happens After They're Built* by Stewart Brand, covers both evolutionary growth and envision growth made to buildings. He argues that buildings should have more of an evolutionary growth, where change is slow and gradual over the course of decades and centuries.[2] *The Architecture of Additions: Design and Regulation* by Paul Spencer Byard, covers the drastic and the classic additions in the built environment. While Byard acknowledges the role of change in the built environment, he argues for the right of the public to retain heritage buildings, and in this way he shares the same sentiments as Stewart Brand when Brand says that growth should be evolutionary.[3] *The Future of the Past: A Conservation Ethic for Architecture, Urbanism, and Historic Preservation* by Steven W. Semes, is a great reference for theory and the overall history of preservation. However, Semes argues for the "new traditional" approach to incorporating an addition to a heritage building. He promotes that the strict perpetuation of the existing style and character of the historic building is preferred; he even views it as being the ethical approach to adding to a heritage building.[4] More than Brand and Byard, Semes aims to maintain the existing aesthetic of the parent building.

2 Brand, *How Buildings Learn*, 188

3 Paul Spencer Byard, *The Architecture of Additions: Design and Regulation* (New York: W. W. Norton and Company , 1998). 11-15

4 Steven W. Semes, *The Future of the Past* (New York: W. W. Norton and Company, 2009). 25-43

Concerning the technical aspects of additions, *Architecture in Existing Fabric: Planning Design Building* by Johannes Cramer and Stefan Breitling, is a technical guideline on the practice of working with heritage buildings. The authors argue that this technical knowledge is important because 50-70% of the time architects are working with existing buildings and need to know how to address them.[5]

Unlike the books listed above, the *Rooftop Architecture: Building on an Elevated Surface* by Ed Melet and Eric Vreedenburgh is not a book concerning the historical significance of additions to existing buildings at all; it is a book that celebrates the growth of the built environment. "Rooftop Architecture" covers the dreamy unrealized additions, small modular removable structures, and a few great examples of avant-garde additions that are little larger than a conference room.[6] Unfortunately, many significant avant-garde examples are not perceptible from the street. This book has been cited in this dissertation because it focuses on vertical growth, an important aspect of urban development. Vertical growth enables the urban built environment to densify. An example of a proposed intervention by Rem Koolhaas to the Whitney Museum is featured in the book.

The main reference on museums, however, is a book entitled *Towards a New Museum* by Victoria Newhouse, which, besides being a basic overview of the history of museums, is a valuable reference on museums of the late twentieth century. In her chapter, "Wings that Don't Fly," Newhouse denigrates the addition to the Louvre because she argues that it does not meet the capacity needs. In truth, capacity needs doubled over time.[7] She also notes the clash of the glass and metal walls of the pyramid with the limestone façade of the museum.[8]

The pyramid at the Louvre was part of the Grand Projects promoted by Françios Mitterrand to connect key monuments throughout the city of Paris. In *Triumph of the City*, author Edward Glaeser uses Baron George-Eugene Haussmann's redevelopment of Paris in 1853 and 1870 as an example that you have to "destroy a city to save it."[9] The point is that Paris has obviously undergone drastic changes in its architectural history, and yet, of course, it has maintained its identity as one of the world's great cities.

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5 Johannes Cramer and Stefan Breitling, *Architecture in Existing Fabric* (Boston: Birkhauser, 2007). 9-13

6 Ed Melet and Eric Vreedenburgh, *Rooftop architecture: Building on an Elevated Surface* (Amsterdam: NAi Publishers, 2005).

7 Philip Jodidio, Architecture Now!: Museum (Italy: Taschen, 2010). 17

8 Victoria Newhouse, *Towards A New Museum* (New York: The Monacelli Press, 1998). 171-176

9 Edward L. Glaeser, *Preservation Follies* , Spring 2010, http://www.city-journal.org/2010/20_2_preservation-follies.html (accessed January 08, 2012).

Beside books about preservation, museums, architectural trends and rejuvenating urban environments, dissertation research includes online periodicals, National Park Service briefs and guidelines, and general planning manuals.

Preservation Issues

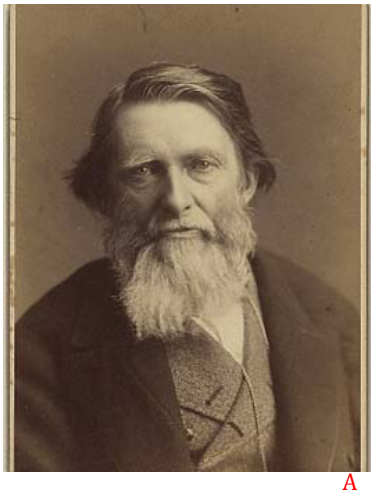
Before covering museums and examples of avant-garde additions, it is important to touch upon what brought on the need for preservation in the first place. This section will be broken down into five sections: starting with the Foundation of Preservation Theories, Preservation in the United States, More Destructive than the Weather of Time, Penn Central Transportation Co. versus New York City, and the Current Condition. Additionally there will be a need to discuss how avant-garde additions to heritage buildings have encountered reservations on the validity of such alterations being a proper form of preservation.

The Foundation of Preservation Theories

While the act and practice of preservation dates back to the Parthenon, it was the 19th century insights of preservation theorists like William Morris, John Ruskin, and others that created the foundation for current preservation practices (images of these theorists are on the following page). The topic of "scrape" versus "anti-scrape," originated in England, is one of the critical points of contention in the history of preservation. In the past, additions to great architectural masterpieces were often just as celebrated as the existing building. However, in the early 19th century there was a wave of stylized restoration, which was the practice of removing elements that were added after the perceived completed date of the building, which came to be known as Victorian "scrape." During this period, preservationists took authority and removed additions that were not in keeping with the idealized image of the original building, as was promoted by preservationists like Viollet-le-Duc.[10] In some cases, even original features that were not considered of the period were removed.[11] William Morris found these acts to be tragic; centuries of history were simply being chiseled away. Morris's concerns with preservation led to his campaign against the removal of additions and modifications, being that he found the course of a building's life to be an integral part of a building's story.[12] The primary concern for preservation, according to Morris, is limiting the amount of integrity lost.

In 1877 William Morris founded the Society for the Protection of Ancient Building (SPAB), which was founded because of its opposition to the "restoration tragedies" that were being performed by the Victorian "scrape" proponents for the preservation of heritage

10 Semes, The Future of the Past, 116-21
11 Brand, *How Buildings Learn*, 94-97
12 Nikolaus Pevsner, "Scrape and Anti-scrape," 34-53 (New York, 1976).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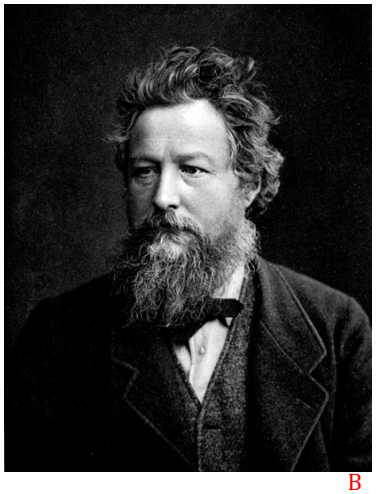
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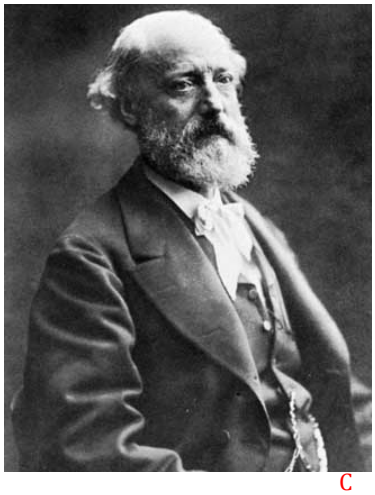
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Figure: 2. A) John Ruskin, the proliferator of "anti-scrape" and the author of *The Seven Lamps of Architecture.* (Image Source: http://www.visitcumbria.com/john-ruskin.htm)
Figure: 3. B) Willam Morris, the founder of Society for the Protection of Ancient Building (SPAB). (Image Source: http://thetextileblog.blogspot.com/2010/06/original-artwork-of-william-morris.html)
Figure: 4. C) Viollet-le-Duc, Victorian "scrape" proponent. (Image Source: http://www.britannica.com.ph/architecture/viollet-le-duc-eugne-emmanuel-382047.html)

buildings. William Morris was highly influenced by John Ruskin's idealized theories on the preservation of heritage buildings, which Ruskin published in his book *The Seven Lamps of Architecture* written in 1848. It is the principle theories of John Ruskin that founded "anti-scrape," a preservation movement that encouraged the retention of the heritage building just as it was, with additions and all.[13]

Many of Ruskin's thoughts were hopelessly idealistic and purist, especially the notion that "we have no right whatever to touch them (heritage buildings). They are not ours."[14] For some, Ruskin's and Morris' thoughts on a "non-interventionist" approach to preservation are too passive; however, it would not be far-fetched to ascertain that most people would agree with their advocacy for the romantic appeal of heritage buildings. While it is nostalgic to keep heritage buildings as they are, it is impossible to follow the principle that a historical building cannot be altered because "they are not ours." In the 21st century, the built environment is faced with a larger population and more demand to be met either by infill developments or by newly developed rural land. There can be a balance struck between the anti-scrape approach and the need for future growth. As the Case

13 Semes, *The Future of the Past,* 122-24
14 John Ruskin, *The Seven Lamps of Architecture* (New York: John Wiley and Son, 1866). 163

Study of Moritzburg Museum illustrates this gap can be bridged. Even Mill City Museums demonstrates how the romantic decay of a building can be retained while enabling the successful use of the site.

While Viollet-le-Duc might have found it deplorable that an addition acted as though it was always there, he would likely be able to appreciate the fact that the additions covered in the case study do not create the false impression of being a part of the original building. For as Viollet-le-Duc acknowledges, "to preserve… it is to reinstate it in a condition of completeness that could never have existed at any given time."[15] While he acknowledges that a building is never truly done, his notion that preventing change from happening can only be attained by preserving a building is not true. In the end, as stewards of the built environment, we should aim to prolong the retention of historical buildings and allow them to change, as they need to. Buildings should not be expected to last forever, and in reality, they do not. Up until the 20th century, the Victorian's "scrape" remained in vogue.[16] Generally now the concept of "anti-scrape" has been accepted, including the understanding of the built environment as an evolving reality; it is how the built environment evolves that is contested.

Preservation in the United States

The turbulent history of growth and change that fostered the need for preservation in the United States was a reaction to change caused by major calamity, natural disasters, war, fires, neglect, past attempts to revitalize an urban region by completely overhauling the built environment, or technology, which resulted in historical loss on a massive scale. The ever-looming threat of heritage loss has driven people to fight to retain what little parts of history remain. In other parts of the world preservationists' ire was fueled by the industrial revolution and then by devastating wars that left cities in ruin. The United States preservationists' skepticism of new developments stemmed from broken promises of postwar urban renewal efforts in the 1950s. Many urban renewal efforts, dubbed "urban removal," by numerous articles and publications, leveled established cities with nothing to show for the carnage except centuries of lost character. This stream of perceived disingenuous effort to improve areas of urban blight left people fighting to keep what they

15 Edward Hollis, The Secret Lives of Buildings: From the Ruins of the Parthenon to the Vegas Strip in Thirteen Stories (New York: Henery Holt and Company, 2009). 225

16 Brand, *How Buildings Learn*, 94-97

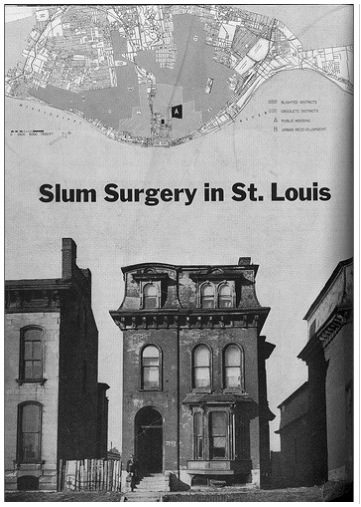

Figure: 6. An image of one of the houses in DeSoto-Carr taken in 1951, form an issue of Architectural Forum. (Image Source: http://www.pruittigoenow.org/the-unmentioned-modern-landscape-2/)

had and knew. Events, such as the leveling of Pennsylvania Station and the overhaul of entire communities, like De Soto-Carr (which was replaced by Pruitt Igoe), were catalysts that ignited the US preservation movement.

De Soto-Carr is probably one of the best recognized failures of urban renewal. De Soto-Carr was replaced by Pruitt Igoe in 1956, and was then demolished in 1972 and never redeveloped.[17] Citizens in other cities around the world became disenchanted with the same misleading promises that drastic urban change would improve their quality of life due to the failure of the urban planners, architects, and developers to manifest what they had promised. This created a public perception that future urban renewal plans might not be in the community's best interest. In addition to the public's concerns of exchanging historical treasures for a parking lot, there grew concerns over the gentrification of an area, which would be the result of cultural based development.

17 Charles Jencks, *The Unmentioned Modern Landscape*, 2012, http://www.pruittigoenow.org/the-unmentioned-modern-landscape-2/ (accessed November 1, 2012).

Figure: 7. Prutt-Igoe in the 1960s. (Image Source: http://www.publicbroadcasting.net/kwmu/news.newsmain/article/1/0/1553949/St..Louis.Public.Radio.News/Planning.promises.on.the.north.side..from.Pruitt-Igoe.to.Paul.McKee)

Figure: 8. Prutt-Igoe in the 1970s as the buildings were being torn down. (Image Source: http://movies.nytimes.com/2012/01/20/movies/the-pruitt-igoe-myth-by-chad-freidrichs-review.html)

It is the great theoreticians of the 19th century that have defined preservation practice, as it is known today. Notably with basic preservation practices such as Ruskin's and Morris' necessitating the use of new material when adding to a heritage building,[18] However, it was not until the 20th century that preservation became popular in the United States. While the practice of preservation in the United States started well before the 1960s, it was the National Historic Preservation Act of 1966 that gave some preservation practices legal backing. Additionally it was during this period that the use of tax benefits was used as a tool to encourage the retention, perpetuation, and reuse of heritage buildings.[19] Since the creation of the National Register of Historic Places in the 60s, the designation of heritage buildings has gone overboard. People are realizing possible tax breaks because buildings are designated heritage buildings. Heritage buildings are being protected by invisible setbacks otherwise known as easements, which are superficially imposed restrictions on the property. It was in 1977 that the Secretary of the Interior's Standards (SIS) for Rehabilitation was developed to help structure general principles on how to rehabilitate heritage buildings; the final iteration was published in 1992.[20] The National Park Service (which was established in 1916) provides briefs of suggestion on best practices according to the SIS.

More Destructive than the Weather of Time

Since the introduction of the SIS, additions to heritage buildings started to be perceived as a crutch for the original building, rather than a celebrated new architectural addition.[21] These suspicions arose as the result of the threatened integrity of heritage properties that are being added to. This is thought to occur when the addition dominates the heritage building. Some believe avant-garde additions to heritage buildings result in the permanent loss of a building's historical context, historical features, and existing architectural stylization. While a heritage building can lose historical integrity and even its identity through the incorporation of an addition, the loss can be mitigated by developing a value system with the community stakeholders on how the building can be added to; as will be discussed in a later section. The ugly truth about any form of intervention made to a building is that it will result in the loss of historical features and integrity. This loss

18 Semes, *The Future of the Past*, 122-24
19 Brand, *How Buildings Learn*, 94-97
20 Semes, *The Future of the Past*, 122-24
21 Piero Gazzola, "Restoring Monuments: Historical Background," in Preserving and Restoring Monuments and Historic Buildings, 15-30 (Paris: UNESCO, 1972).

is comparable with the loss experienced when rehabilitating a historical building to a usable state. There is no doubt, however, that the loss of historical features will be even greater when a building is demolished and replaced. Future generations would be left with only photos and site drawings to appreciate. A commonly made argument against such developments is that the risk of losing heritage features is not worth the gain. Preservationists need to come to terms with the reality that there will always be loss, whether there is no intervention, a minor one, or a major intervention made. The notion that the historical integrity of a heritage building could be so easily corrupted or dominated by an avant-garde addition is misguided, because the majority of heritage buildings are not adverse to change and are quite resilient than preservationist might believe, in retaining their identity even with a substantial rooftop addition and or obscured features. Indeed, although some loss of historical fabric will occur, it is important to encourage a working relationship among preservationists, urban planners, architects, and developers. The reason it is so important to further develop the relationship between architects and preservationists is to ensure their cooperation and their awareness of cultural and environmental factors. Another reason is that architects need to take every precaution to ensure that the impact of the designed addition or intervention is understood.

People may say that there is no room for buildings to be used as a testing ground, least of all irreplaceable heritage buildings. The reality is that all great buildings have been an exploration of new technologies and style. Every great building has been built with great risk. There are also objections to the loss of heritage features. Both of these concerns are valid, but the reality is that any form of progress is an exploration and should not be avoided because of concerns of failure. Many applied forms of preservation later proved to be more destructive than the weather of time. The practice of preservation has been a learning experience and full of experimentation. There have been attempts in the past to apply a protective coat, for instance, to the surface of heritage monuments to prevent the wear of relief carvings. Unfortunately, attempts to preserve art carvings failed and the entire top layers of walls flaked off. Preservationists have taken apart buildings and put them back together incorrectly, all for the sake of preservation. At least with buildings like the ROM, the enclosed walls will be protected from the weather.

Utilizing heritage buildings strictly for their facades is not a false representation of a place, where as designing a new building in the style of a heritage building is a false representation of history. In the renovation of a house museum, concerns for the interior

would hold some merit. However, buildings are a utilitarian part of day-to-day modern life, and to expect people to conform their life style (programmatic requirements) to the interior layout of a building that was designed for the 19th early 20th century is profoundly unrealistic. It is critical that heritage buildings be able to grow, even if historical loss occurs; at best all that can be done is minimize the physical loss. Many people in opposition to facadism as a form of intervention made to heritage buildings feel as though the preservation of exterior elements is a hollow attempt to retain history. Despite the objection to the accrued loss of historical features and disconnect between the exterior and interior, the argument can be made that the mere retention of these buildings' envelopes helps perpetuate a region's sense of place and history. The facades of these heritage buildings tell people a story of where the town or city came from, and the extension will tell a story of where the place is going.

In the end, preservation has always been an important part of the built environment. There is an emotional tie that people have with the history of a place. Throughout the decades, most if not all buildings have obtained some form of significance, sometimes apparent, sometimes more subjective. Some buildings are significant as a venue for historical events, for their architectural features, or simply because they are old. The National Register of Historic Places bases its registry on four criteria: events, persons, design/construction, and information potential.[22] Even the simple retention of an old brick wall can contribute to the significance of a building. Sometimes the interior of the building defines the property's historical significance. A seemingly simple floor layout is important because it reflects a time, place, and program just as much as the building's exterior--if not more. In many cases, however, the interior layout that once defined the existing building is the very feature that renders the building ill equipped to accommodate a new program. Even if the interior of the building is altered, it need not nullify the significance of the exterior facade. It does not make sense to retain all historical features if there is no longer a programmatic, functional, or any real culturally significant reason to, other than for the sake of preservation. Despite the reality that the built environment will change and loss will always occur in the 1960s it was essentially ruled that change to heritage building should be mitigated and the community is entitled to there input on the future of the built environment, in Penn Central Transportation Co. versus New York City.

22 U.S. Department of the Interior, National Park Service, *VI. How to Identify the Type of Significance of a Property,* http://www.nps.gov/nr/publications/bulletins/nrb15/nrb15_6.htm (accessed November 1, 2012).

Figure: 9. Jane Jacobs, a prominent preservation activist, demonstrating to save Penn Station, she has been highlighted in yellow. (Image Source: http://www.streetsblog.org/category/people/jane-jacobs/)

Penn Central Transportation Co. versus New York City

The legal battle to develop the Pam Am building as an addition on top of the Grand Central building, a case so controversial that it made it to newspaper covers and the docket of the US Supreme Court, redefined development in New York City and the nation. Though Penn Central Transportation Co versus New York City is not a case that involves a museum, it made a crucial impact on the preservation of historical cultural assets and shaped the outcome of many developer's attempts to alter sites. The ruling fortified preservationists' arguments on the importance of historical landmarks and the fact that they should not be altered or replaced for personal gain. This case was the first well-known preservation lawsuit made after the formation of New York City's Landmarks Preservation Law.

Events that led to the Penn Central Transportation Co versus New York City were the city's escalating loss of historical landmarks. In 1963, Pennsylvania Station was demolished, for the fourth iteration of the Madison Square Garden. [23] The demolition of Pennsylvania Station, a monumental 1910 Beaux-Arts edifice designed by McKim, Mead and White, was the final draw for the preservation community, which prompted them to create a protection agency for historically significant sites in New York City. In the years following the demolition of the Pennsylvania Station the desperate protest of the community was heard, and, in 1965, Mayor Robert Wagner passed New York City's Landmarks Preservation Law overseen by the Landmarks Preservation Commission (LPC). This law was "enacted to protect historic landmarks and neighborhoods from precipitate decisions to destroy

23 nyc-architecture.com. *Penn Station.* May 20, 2001. http://www.nyc-architecture.com/GON/GON004.htm (accessed April 04, 2010).

or fundamentally alter their character."[24] From that time on, the Landmarks Preservation Commission may designate a building to be a "landmark" on a particular "landmark site," or may designate an area to be a "historic district."[25]

The LPC was mainly formed to protect historic sites that were being demolished for financial gain. Madison Square Garden was conceived as the financial salvation that would trigger a wave of development to breathe life into both New York City and the Penn Central Transportation Co. "The negotiations proceeded quietly, with little hint that the demise of Penn Station was being contemplated until a New York Times article appeared in July, 1961. The plan called for the demolition of the Penn Station terminal, and its relocation beneath the new arena. It was also revealed that a new corporation, Madison Square Garden, Inc., would manage and own 75% of the building, while the owner of the existing building (the railway) would retain a 25% interest.[26]

The vicious cycle of destruction and redevelopment is underway once again. An investment of $50 million has already been earmarked for the possible replacement of Madison Square Garden with a recreation of the 1910 Beaux-Arts structure that once stood on the site. This homage to the past is projected to total $14 billion, but due to the current economic state, plans for a new Penn Station are on hold. Plans for the New Penn Station involve connecting the existing early 20th century post office with a grand new iconic structure that exhibits the grandeur of the old one.[27]

In the 1950s, the four blocks occupied by Penn Station and the Pennsylvania Railroad were too valuable not to develop for the owners were nearing financial ruin. There were several proposed interventions made to Penn Station. "In 1954, William Zeckendorf proposed replacing Grand Central with an 80-story, 4,800,000-square-foot (446,000 m2) tower, 500 feet (150 m) taller than the Empire State Building. I. M. Pei created a pinched-cylinder design that took the form of a glass cylinder with a wasp waist."[28] The plan never left the design stage because of the grand scale of the proposal. The following year Erwin

24 Justia. *Penn Central Transportation Co. V. New York City, 438 U. S. 104 (1978).* 2010. http://supreme.justia.com/us/438/104/ (accessed April 04, 2010).
25 Ibid
26 nyc-architecture.com. *Penn Station.*
27 Skoch, Iva. *New York's Penn Station to remain hideous.* February 23, 2008. http://www.gadling.com/2008/02/23/new-yorks-penn-station-to-remain-hideous/ (accessed April 04, 2010).
28 nyc-architecture.com. *Penn Station.*

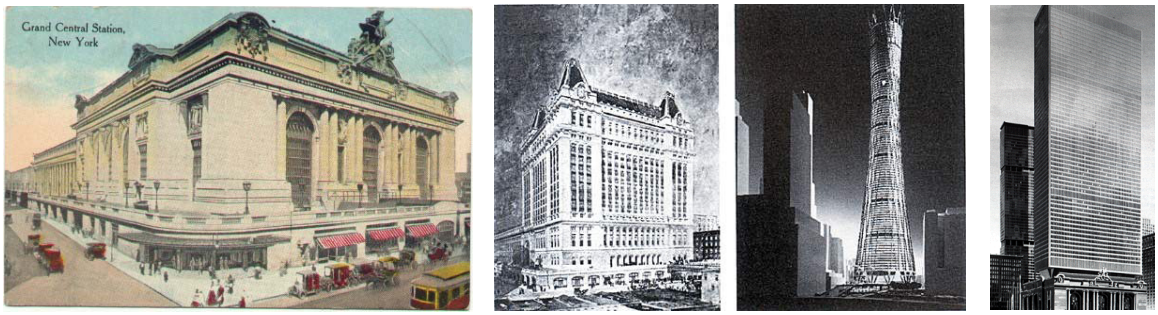

Figure: 10. A) Grand Central Station, New York. (Image Source: http://www.nyc-architecture.com/MID/MID031-GrandCentral.jpg)
Figure: 11. B) Grand Centrals proposals by Reed and Sten. (Image Source: Architecture of Additions: Design and Regulation by Paul Spencer Byard)
Figure: 12. C) I. M. Pei's 1956 proposal to replace Grand Central. (Image Source: Architecture of Additions: Design and Regulation by Paul Spencer Byard)
Figure: 13. D) Marcel Breuer's proposal. (Image Source: Architecture of Additions: Design and Regulation by Paul Spencer Byard)

S. Wolfson proposed a tower north of the Terminal replacing the Terminal's six-story office building. In 1958, Wolfson's plan was approved construction was completed in 1963, and it is widely recognized as the Pan Am Building (now the MetLife Building).

Shortly thereafter, in 1968, after facing bankruptcy Pennsylvania Railroad and Grand Central merged to form the Penn Central Railroad. The same year Penn Central unveiled plans for a tower designed by Marcel Breuer, even bigger than the Pan Am Building, to be built over Grand Central. The proposed addition, a 55-story structure that sat on top of the Grand Central Station, created an uproar and fierce opposition within the preservation community in New York City. Some people referred to the proposal as: "A 55-story office tower above a flamboyant beaux-art façade seems nothing more than an aesthetic joke." Even Jacqueline Kennedy Onassis questioned the proposal for a new addition to Grand central Station:

> Is it not cruel to let our city die by degrees, stripped of all her proud monuments, until there will be nothing left of all her history and beauty to inspire our children? If they are not inspired by the past of our city, where will they find the strength to fight for her future? Americans care about their past, but for short term gain they ignore it and tear down everything that matters. Maybe… this is the time to take a stand, to reverse the tide, so that we won't all end up in a uniform world of steel and glass boxes.[29]

29 US History Encyclopedia:. *Grand Central Terminal.* 2010. http://www.answers.com/topic/grand-central-terminal (accessed April 04, 2010).

Referring back to Jacqueline Kennedy Onassis while it is not desired that the built environment be a "uniform world of steel and glass boxes" it is not desirable that entire districts in a city become time capsules or communities that can only grow according to the aesthetics of the LPC, either. Being that Grand Central Station is located in previously newly formed Historic District, Penn Central Transportation Co had to apply for a Certificate of Appropriateness, so on September 20th, 1968, the LPC reviewed the proposal and found it to be inappropriate and destructive to the integrity of the existing structure. Consequently, the Certificate of Appropriateness was denied. The LPC did offer a transfer of development rights, but this was not received as just compensation for the loss of the land use. Penn Central was reluctant to abandon the plans for development; but New York City filed a suit to stop the construction. In the trial Penn Central made the claim that being denied the right to develop their property by the Landmarks Law was a "taking" of their property without just compensation in violation of the Fifth and Fourteenth Amendments, and that they were owed just compensation. Therefore, the case went to court and it was found that Penn Central Transportation Co. was not permitted to develop a 55-story structure on top of the Grand Central Station. After the initial ruling Penn Central took their case to the New York Court of Appeals, who ruled with the finding of the first court.

The New York Court of Appeals ultimately concluded that there was no "taking," since the Landmarks Law had not transferred control of the property to the city, but only restricted appellants' exploitation of it; and that there was no denial of due process because

> –The same use of the Terminal was permitted as before
> –The appellants had not shown that they could not earn a reasonable return on their investment in the Terminal itself
> –Even if the Terminal proper could never operate at a reasonable profit, some of the income from Penn Central's extensive real estate holdings in the area must realistically be imputed to the Terminal
> –The development rights above the Terminal, which were made transferable to numerous sites in the vicinity, provided significant compensation for loss of rights above the Terminal itself.[30]

Penn Central Transportation Co appealed the ruling once again, resulting in the Supreme Court case Penn Central Transportation Co. vs. New York City (1978), the first time the Supreme Court ruled on a matter of historic preservation. Leonard J. Koerner argued the cause for the LPC, Daniel M. Gribbon argued the cause for Penn Central Transportation Co, and Patricia Wald argued the cause for the United States. The nine presiding Supreme

30 Justia. *Penn Central Transportation Co. V. New York City, 438 U. S. 104 (1978).*

Court Justices were: Byron R. White, Harry A. Blackmun, John Paul Stevens, Lewis F. Powell Jr., Potter Stewart, Thurgood Marshall, Warren E. Burger, William H. Rehnquist, and William J. Brennan Jr.. Six of nine of the U.S. Supreme Court Justices 1968 found that there was no "taking" or violation of the Fifth and Fourteenth Amendment. Penn Central went into bankruptcy in 1970 in what was then the biggest corporate bankruptcy in American history."[31]

The results of this case law does not imply that there cannot be any form of alteration or extension made to Grand Central, but rather that the proposal made by Marcel Breuer was found to be inappropriate, and that the community does have a right to retain their historical and cultural assets. This case opened a Pandora's Box, because the right to develop a property is no longer simply the right of the property owner. In the years since the Supreme Court ruling on Penn vs. the U.S., there have been many efforts to expand and prolong the use of buildings. However, while millions have been invested in the design and development of properties like the Whitney Museum only to find that the only acceptable form of development does not meet the financial bottom line or programmatic requirements.

Since this case, the community has outweighed the rights of heritage building owners. The owners loss of rights was not because of easements, but because a preservation committee voted against the appropriateness. The roles of the community

31 US History Encyclopedia:. *Grand Central Terminal.*

Figure: 14. Hearst Building designed by Joseph Urbann in 1927. He original design was a tower, but the Great Depression prevented the building from being realized. (Image Source: http://www.thecityreview.com/hearst.html)

Figure: 15. The Hearst Tower designed by Norman Foster in 2006. (Image Source: http://www.thecityreview.com/hearst.html)

and preservationists are critical in the proper development of heritage buildings; however, the government or the preservationist should not undermine the desire of the property owner. Once the development of a heritage building properly ensures the retention of the historical aspects, progress should continue. It is important to involve the community. The government should not regulate the aesthetics of additive architecture. The governments' main concern should be ensuring the health, safety, and welfare of the public.

In 2001 there were signs that all was not lost for the future of additive architecture in New York City, since the ruling there have been instances in which the demand for change has persevered. Such as the example of the addition made to the Hearst building (completed in 2006) design by Norman Foster, which was approved unanimously by the LPC in 2001 (before and after images of the Hearst building on the previous page). Renzo Piano's proposal was approved shortly there after, but caved under the pressures of preservationist. Steve W. Semes said "three decades of preservation successes were thus overturned" with the approval of such development, this sentiment is shared by many preservationist.[32]

In an article written by Edward L. Glaeser, for City Journal in Spring 2010 entitled "Preservation Follies," he identified that in New York City alone there are 1,200 landmarked buildings, and 100 historic districts containing 25,000 buildings; (that in many cases have little to no historic significance). These numbers have surely grown since then, and, in addition, many of these properties were placed in historic districts despite objections. Several projects were scrapped as a result of which the article makes no reference to the Whitney Museum falling victim to the "preservation follies." While having 16% of Manhattan designated, as a part of a historic district might seem insignificant, it is not. Many of New York City's historic districts are located in the most expensive location on the island (map identifying the historic districts on Manhattan is on the following page).[33]

Current Condition

Over the past few centuries, in spite of a significant loss in heritage buildings, there is still a considerable stock of historic buildings in many cities. The retention of *every* historical asset is not viable. So there is a need to critically review buildings to determine the "Why's" and "What's" that contribute to assessment of the integrity and value heritage buildings. Questions like: What changes have been made over the years? Does the building

32 Semes, *The Future of the Past,* 3 and 27
33 Glaeser, *Preservation Follies*.

still have integrity? What parts of the building are contributing to its unique historical qualities? Is the building rare? How much of the existing building needs to be retained, to ensure the building's significance? An objective review of the building must be conducted to answer these questions.

Other considerations must be made when a building is restored: Is it easier to retain the crown molding of a room versus the stairs when converting the function of a space? Is there a point at which the modernization of an historic fabric undermines the historic value of what is left? Is there a ratio of old to new that should make up a historical city? Or is there something intangible that resonates with the people and the culture that makes a place historic; and the built environment only fortifies this sense of history.

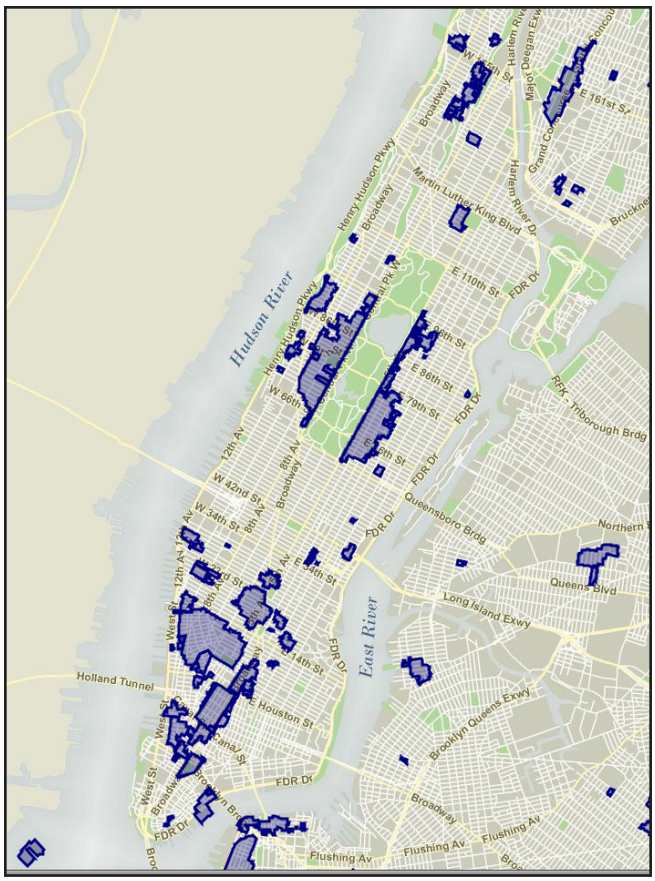

Figure: 16. The areas identified in blue are the Historic Districts found within Manhattan. These locations include the Upper East Side and many other desired locations. (Image Source: http://gis.nyc.gov/doitt/nycitymap/template?applicationName=ZOLA)

There is no equation to compute when a historic city is no longer perceived as a historical place. As made evident with the several public efforts to renew Paris in the 19th and late twentieth century.

What makes preservation even more complicated is that the very buildings preservationists fought against are now eligible to be on the National Register of Historic Places. As the increase of eligible buildings occurs more of the moderately significant historical buildings are under threat. The preservation community needs to reassess how these buildings can be retained. This is why it is important to utilize existing buildings. Faced with this conundrum, architects, planners, and preservationists are coming up with

intellectual and playful approaches to how buildings that are not of national significance can be preserved, while growing. By making these buildings into informative tools, that implies what once existed, how architectural technologies have changed (by creating physical sections that visitors can experience) and most importantly it illustrates the social changes that have occurred over the decades. With that said, it is evident that preservation requirements and standards are not sustainable for the long run.

However, the efforts to change the current trajectory of preservation practice are stifled by the tendencies of some historic advocates to hoard heritage buildings, by fighting to keep as many heritage buildings in their original condition as possible. There is a need for preservationists to be selective and invest their limited resources on buildings that have a national significance. As pointed out by Jane Fawcett, preservationists must:

> …bear in mind that there are degrees of value, and economic necessity frequently imposes a choice. Therefore before we set up a howl in defense of some admirable but far from unique group of cottages or a Queen Anne rectory, let us always reflect whether or not our action is going to prejudice our chances of stopping the demolition of some acknowledged masterpiece threatened at a later date.[34]

Fortunately, as DoCoMoMo (Documentation and Conservation of Buildings, Sites and Neighborhoods of the Modern Movement) founder Hubert-Jan Henket points out, "this polemic is both technical and aesthetic, but at its essence it is social, driven by a collective desire to create habitats designed with the instruments of modernity to improve human life."[35] Hubert–Jan Henket is acknowledging that changes to existing buildings are a part of the natural process of the built environment. Therefore, it would seem, with an aging stock of "modern" buildings, and the success of the preservation movement, the stigma of rehabilitation is starting to evaporate.

The concerns of an aging stock of historical buildings simply cannot be resolved by changing the minimum qualifying age to be a historically significant building, because that sends the wrong message to the public. There is the larger picture with buildings still being constructed on a yearly basis. It is unsustainable to think that an entire period of architecture should remain virtually the same, and that they will always be more significant

34 Jane Fawcett, *The Future of the Past* (New York: Watson Guptill, 1976). 66

35 David N Fixler, *Preserving Modern Architecture – and the Future of Preservation*, http://www.eypae-design.com/resources/papers_and_publications/Fixler-PreservingModernArchitecture.pdf (accessed November 5, 2009).

than buildings that have yet to be built. The architecture of pre-early 20th century is not better or of more worth because buildings are simply older and represent something different.

Promoting additions that represent the period in which they were built will create a more genuine built environment than a cityscape that remains virtually unchanged except for a few facsimiles of historical buildings designed simply for the sake of keeping with the existing character of the place. Facsimiles of historic buildings should be reserved for theme parks like Williamsburg and Disneyland.

Even after the question of which buildings are worth saving has been addressed, it is still important to note that these revered buildings can be added to as needed. However, the question as to whether there are certain buildings that should not be added to or how the additions should be integrated to heritage buildings is where many theories on additions diverge. So, when and where is it not appropriate to make an addition to a "heritage building"? Making these interventions begs the question; where are the limits? Arguably, there should be a quantifiable limit applied to extensions to historic buildings; however, investigation shows that such limits have not been identified. Exploring all of the case studies discussed in-depth in a later chapter, has led to the conclusion that there should not be a general standard dictating which buildings can or should not be added to. Many of these additions define how we identify these buildings, such as the Grande Pyramide du Louvre.

Although not all of these additions have successfully managed to integrate every historical feature of the original building, there is not a correlation between the building type and the success of the addition. It is apparent that additions occur in a wide range of building types, both "high-road" and "low-road" buildings alike. Many of the case studies cover buildings that are of historic significance, some of which have been added to several times with contemporary additions. Thus, it has been derived that there is not a building above being added to. It is not a matter of which buildings should be added to, it is more about how the addition is integrated to the existing building.

The main point of contention that needs to be resolved is what kind of addition is acceptable. Preservationists have recognized the significance of additions made to historical buildings in the past. Now many opponents of contemporary additions to heritage buildings claim that there is often no conceptual, stylistic, or cultural relationship between the

existing and the added building. The lack of visual relationship inlays the problem. However, in many ways the disconnect in concept, style, and cultural understanding of an existing building is the very premise of these additions. The Venice Charter (refer to Appendix A) does state that heritage buildings can be integrated into new developments and that additions should be designed in a contemporary manner.[36]

An initial response to limiting the enhancing of these buildings would be to say that if the building is historically significant and has integrity it should not be added to. This theory has been debunked by projects like the Royal Ontario Museum (ROM), where the original building and the first addition are pristine examples of Italianate Neo-Romanesque and Byzantine Style.[37] The ROM is a project that has gone above and beyond the goal of preserving a heritage building in a holistic manner. The architect has managed to integrate old and new on the same plane of existence without one dominating the other, representing an ideal form of growth. Additionally these are both formidable examples of buildings that represent the period in which they were built. While they are "high-road" structures they have been successfully added to, which suggest that avant-garde additions to heritage building can be integrated with prize building of significance. When designing their additions, Starchitets like Daniel Libeskind, Herzog and de Meuron, Zaha Hadid, and Frank Gehry have successfully integrated the past with the present. Additions should be made on an as needed basis. Buildings are seldom if ever added to on a whim. If their approaches were not successful, architects like Daniel Libeskind and Hertzog and de Moron would not be called back for future development plans. As they were with the Jewish Museum Berlin, the Felix Museum, the Tate Modern, and the Museum Kuppersmuhle for Modern Arts (MKM), all of these buildings were added to twice by the same architects who made the first addition. These buildings represent examples of a wide range of buildings from civic, mansions, and industrial buildings. Each of the buildings discussed above have well thought out additions that create a dialogue between old and new. Projects such as these illustrate that, when done well, extensions can be successfully integrated into virtually any building. So the question of which buildings should not be added to is not the right question; rather, it is a question of how "high-road" structures should be added to.

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36 The Venice Charter, International Charter for the Conservation and Restoration of Monuments and Sites, January 12, 1996, http://www.icomos.org/venice_charter.html#restoration (accessed October 4, 2009).

37 Browne, Kelvin. *Bold Visions: The Architecture of the Royal Ontario Museum.* Toronto: Royal Ontario Museum, 2008. 62-84

Most of the examples of addition in this document have been cleverly integrated with heritage buildings. Generally speaking industrial buildings have been desirable platforms for additions because of their simple form. Well-maintained buildings are more desirable platforms for additive architecture than derelict buildings, because a structurally secure building will require less intervention retaining nearly all of its historical features. However, precautionary measures should be taken to ensure that the best-preserved examples be protected from major alterations that will result in the permanent loss of the buildings' physical features.

When rejuvenating an area, the importance of additive architecture is paramount. There is no better way to create a sense of identity than retaining the existing building, and yet to entice the public's interest by incorporating something new and expressive of the area's future.

Preservationists are in the business of protecting buildings that have been around for a long time, so it would seem to make sense that they would want to encourage the development of buildings that are expected to endure. Many years from now buildings will make a statement regarding the period they were designed.

In the end, architecture and the built environment is ephemeral by nature, and while efforts should be made to retain their longevity, it is unrealistic to think that buildings should be retained forever, and unfair to say that only certain periods of architecture merit being retained. Vital to the role of preservation organizations is to account for successful precedents that have been explored independently. There needs to be a middle ground, where both preservation and growth are encouraged. With an ideal on the reasons for the interruption of this natural cycle of change, adaptation, and current preservation practices, the next section will identify how and why museums are perpetuating the physical evolution of the built environment. While museums have played a significant role in the evolving nature of the built environment, they have also aided the objectives of the preservation community through the museumifcation of everything.

Annexation: A Historical Evolution in Museums

This section explores how museums with notable additions came to be in cities that are often recognized for their conservative approach to preservation, such as Paris. An investigation of the changing relationship between existing buildings and additions provides insight on why museums adopted additive architecture as a form of growth. Shifts in practice that have led to current practices are identified in three primary sections: Pre Museums: a Culture of Growth and Evolution, The History of Museums, and The History of Adaptation and Growth in Museums.

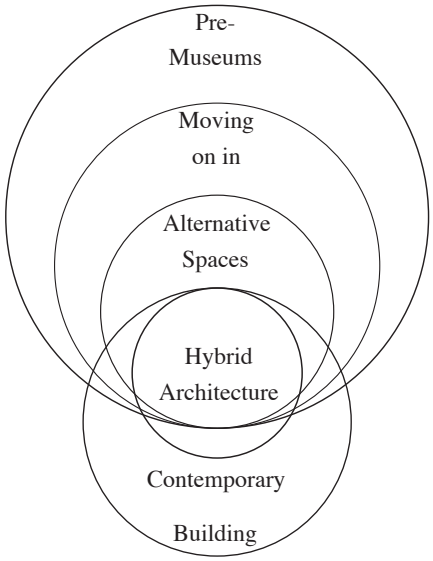


Figure: 17. This diagram illustrates the overlapping of existing and new buildings, the fact that Hybrid architecture is a medium between growth and preservation.

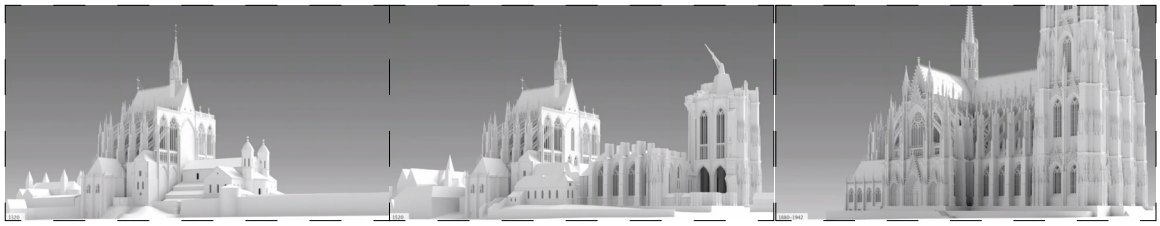
Pre Museums: a Culture of Growth and Evolution

Gaining perspective on the architectural precursor to museums is a critical step in understanding why the evolution of a place is so important. The changes to cathedrals through time can be used as a philosophical idea. A brief overview of some of Europe's most famous and oldest cathedrals will be touched upon to gain perspective on how drastically the built environment changed throughout the centuries, well before the industrial age. Museums and Cathedrals share many defining attributes; they are both recognized for their exuberant art and architecture, both are a catalyst for growth, and both often serve as a city's cultural center. Additionally, they both tell a story dictated by the function, technology, and style of the period in which they were built. Cathedrals use the exterior and interior of the architectural edifice to depict the story of Christianity with form, space, and art. Museums also tell stories about different places and periods in time with form, space, and art. Cathedrals embody a tradition of metamorphosis and growth that has been lost; only now it is being regained in civic buildings such as Museums.

For instance, for centuries Gothic Cathedrals dominated the landscape in both scale and beauty, and were frequently rehabilitated and enhanced with new architectural inventions. Cathedrals such as Cologne Cathedral and Notre Dame de Paris were perpetually changing because of collapses, lack of funding, and long reconstruction periods, which have

resulted in an eclectic collage of techniques and styles. Noting the construction of Cathedrals broken down into phases and developed over centuries, a question raised is: what would these great Cathedrals have looked like if modern preservation practices were applied then as they are now? The Cologne Cathedral would be nothing but a choir, or perhaps half the height it is today. It stood that way for nearly three hundred years (these growth phases are illustrated in images A-C below). While the variation of architectural style may seem modest by today's standards, the variation in styles are profound for the period in which they were built.[38] The concept of preventing the growth of a building will be discussed in "Proposed but Never Realized."

38 Lengyel Toulouse Architekten, The Construction Phases of Cologne Cathedral and its Predecessors, May 19, 2010, http://www.youtube.com/watch? v=-Xw4W_dog3U (accessed July 10, 2011).



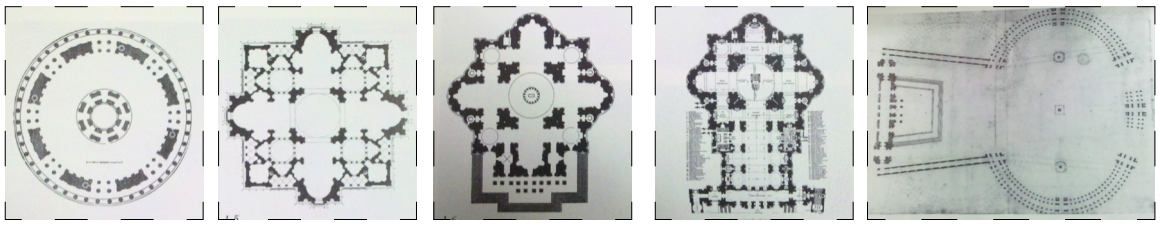


Figure: 18. A) 1320 the choir. (Image Source: The Construction Phases of Cologne Cathedral and its Predecessors, directed by Lengyel Toulouse Architekten, 2010.)
Figure: 19. B) 1520 the nave (300). (Image Source: The Construction Phases of Cologne Cathedral and its Predecessors, directed by Lengyel Toulouse Architekten, 2010.)
Figure: 20. C) 1880-1942 the completed Cathedral. (Image Source: The Construction Phases of Cologne Cathedral and its Predecessors, directed by Lengyel Toulouse Architekten, 2010.)
Figure: 21. D) Saint Peter's Church by Serlio. (Image Source: Byard, The Architecture of Additions 18-21)
Figure: 22. E) Saint Peter's Church by Bramante's 1506. (Image Source: Byard, The Architecture of Additions 18-21)
Figure: 23. F) Saint Peter's Church by Michelangelo's 1564. (Image Source: Byard, The Architecture of Additions 18-21)
Figure: 24. G) Saint Peter's Church by Maderno's 1612. (Image Source: Byard, The Architecture of Additions 18-21)
Figure: 25. H) Saint Peter's Church by Bernini's 1667. (Image Source: Byard, The Architecture of Additions 18-21)

Perhaps the best recognized example of additive architecture is Saint Peter's Church, Rome. The intervention made was undertaken by several renowned architects and was developed over the course of a century and a half. Saint Peter's expresses both a physical growth and an urban growth, with the addition of the St. Peter's Piazza (these growth phases are illustrated in images D-H below). It would be difficult to imagine what St. Peter's would look like if the work of Donato Bramante were left to stand on its own.[39] These great church buildings pay tribute to the natural evolution of the built environment.[40]

The History of Museums

The origins of the word museum is a derivative of the Latin meaning for museum "library, study" and the Greek word mouseion which means "place of study, library or museum," originally "a seat or shrine of the Muses," from Mousa "Muse."[41]

Though the history of museums dates back to Ancient Greece, this dissertation will refer to the current understanding of museums as public forums. The comprehension of museum being a building to display objects for the public was first recorded in 1683, with the Ashmolean Museum of Art and Archaeology.[42] While some museums opened up to the public in the 17th century, it was in the 18th century that museums would be recognized as the civic buildings that they are today.

Museums also started to develop in the U.S., as they are conventionally known, in the 18th century. In 1773, Charleston Museum opened, making it the first public museum in the U.S.[43] However, Wadsworth Museum also lays claim to being the oldest museum in the nation. It was established in 1842. The fact that Wadsworth Museum is still operating out of its original building unlike the Charleston Museum, may have contributed to the disagreement.[44] While the Louvre might not be the oldest public museum, it has certainly been one of the most influential in the way that it has been developed. A wave of socialist

39 Byard, The Architecture of Additions, 18-21
40 Lengyel Toulouse Architekten, The Construction Phases of Cologne Cathedral and its Predecessors.
41 Douglas Harper, Museum, 2011, http://www.etymonline.com/index.php? term=museum (accessed December 20, 2011).
42 Geoffrey Lewis, "The History of Museum," http://www.muuseum.ee/uploads/files/g._lewis_the_history_of_museums.pdf (accessed December 20, 2011).
43 SCIWAY, South Carolina – Firsts, 2011, http://www.sciway.net/facts/firsts.html (accessed December 20, 2011).
44 UNStudio, Schematic Design UNStudio Fox & Fowle Architects Maya Lin Wadsworth Atheneum of Art Hartford, Connecticut, September 23, 2002, http://www.arcspace.com/architects/un/wadsworth/wadsworth_index.html (accessed December 20, 2011).

ideals and the concept of "Draconian inheritance tax"[45] being embraced, movements like the French Revolution gave power to the people. The French Revolution made the Louvre accessible to the people, opening to the public in 1791.[46] At the same time that museums found value in inhabiting old places, museums were reviving the popularity of reusing existing buildings.

Adaptation and Growth in Museums

While many museums grow from humble starts, simply by occupying existing "high-road" structures, which they later add to, like the Moritzburg Museum and the Art Gallery of Ontario (AGO). There are others that gained the means to move into new buildings, most of which were stylistic revivals of past architectural periods. Museums like the Metropolitan Museum, Brooklyn Museum, Royal Ontario Museum, and the Wadsworth Museum were developed using styles that reflected a more classic form of architecture that represents prestige, permanence, and power, in keeping with the trends of that period and the values of the regions in which they were built. When the opportunity presents itself there are still advocates to perpetuate such architectural revival. However many subsequent additions were designed in completely contrasting styles, which were reflective of the period in which they were built.

It is difficult to identify the exact period, but it would appear that the reuse of existing buildings for the purpose of housing a museum started to pickup pace near the turn of the 20th century.

In general, there are three movements identified in the evolution of Museums as it pertains to the reuse and growth of buildings: part 1) "moving on in" is the reuse of existing "high-road" structures to establish museums, part 2) "alternative spaces" is a paradigm shift to the reuse of "low-road" structures, and part 3) "hybrid architecture" is the emergence of the use of signature addition to an existing structure. Each of these phenomena identifies varying occurrences found between museums and the buildings in which they occupy. The first and second movements are precursors to the physical growth of museums that is documented in the hybrid architecture of the late 20th and early 21st century.

45 Brand, *How Buildings Learn*, 95

46 Louvre, History of the Louvre From Château to Museum, 2012, http://www.louvre.fr/en/history-louvre (accessed January 13, 2012).

Now that there is some understanding of the history of changes in general and pre-museums, the use of existing "high-road" structures will be discussed in the following segment: "Moving On In."

Moving On In

From the beginning, many museums adhered to the reuse of existing buildings as a sustainable form of growth. Around the same period that preservation became popular in Europe, museums were being moved into newly available "high-road" architecture, such as old civic buildings, mansions, or old castles. Such museums often take up residency in heritage buildings that have defined a city's urbanscape for centuries. Examples of such museums would be the Louvre, Castelvecchio, Art Gallery of Ontario, the Military Museum, and Moritzburg Museum, and even the Royal Ontario Museum. Many of which became vacant due to a wave of social revolutions covering Europe, and the enforcement of "Draconian inheritance taxes." Places like England formed the National Trust in 1894 to manage these castles and chateaus that became available after World War II, to serve a new public function.[47]

The buildings being moved into were ideal because most of these buildings were constructed to withstand the test of time, with materials like brick and stone. However, the materiality of an existing building does not limit interventions from being made. While

47 Brand, *How Buildings Learn*, 95

A B C D

Figure: 26. A) The Louvre. (Image Source: http://www.robinsonlibrary.com/finearts/visual/museums/graphics/louvre-arc.jpg)
Figure: 27. B) Moritzburg Museum. (Image Source: http://www.mhoefert.de/r3_halle.htm)
Figure: 28. C) Toronto Normal School the first home of the Royal Ontario Museum. (Image Source: http://barbaramartin.blogspot.com/2008/11/my-town-monday-toronto-normal-school.html)
Figure: 29. D) Art Gallery Of Ontario. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

the reuse of "high-road" structures appeared to flourished in the late 18th and early 19th century, and to a lesser extent today, it was the 20th century that turned the spotlight on "low-road" industrial buildings, old factories and warehouses becoming high culture buildings with the implementation of alternative spaces.

Alternative Spaces

By the middle of the 20th century, museums started to move into desolate industrial buildings. At first these buildings were selected because the practice broke away from convention and the buildings were isolated. So, only people who really appreciated art would visit. The buildings were also relatively inexpensive. Old industrial buildings are often known for their desirable locations; usually with a view and close proximity to the waterfront. However, it was when these buildings became chic museums, that industrial-building sites became more desirable. Before then these buildings sat desolate and unused for extended periods of time, but now these rejuvenated buildings are bringing life back to the regions they occupy.

Most of the examples and case studies are buildings that were originally used for another purpose. In other words they were examples of adaptive reuse. Additionally, most of these buildings are but echoes of what they once were, being that only the façades of the original building remains, aka facadism. Facadism, the sole use of the exterior walls of an existing structure, is more frequently encountered with "low-road" structures such as industrial. In *How Buildings Learn* Stewart Brand covers what he calls "low-

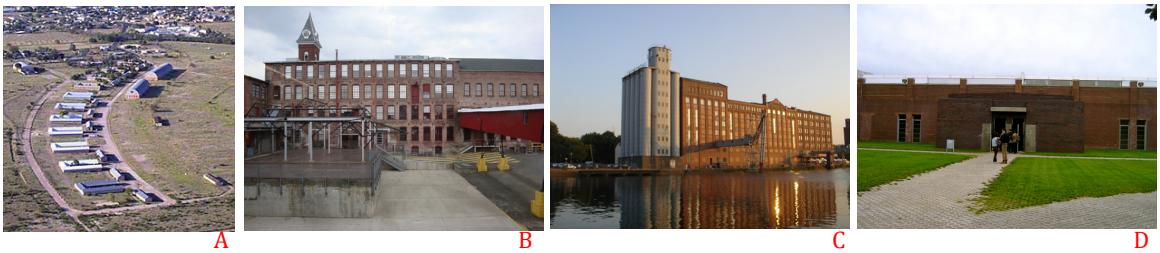


Figure: 30. A) The Chinati Foundation 1972-94. (Image Source: http://www.chinati.org/images/mission_foto.jpg)
Figure: 31. B)Mass MoCA 1999. (Image Source: http://artjetset.files.wordpress.com/2010/03/massmocamar094.jpg)
Figure: 32. C) Museum Kuppersmuhle of Modern Art 1999 .(Image Source: http://www.euromuse.net/en/museums/museum/view-m/mkm-museum-kueppersmuehle-fuer-mode/)
Figure: 33. Dia Beacon 2003. (Image Source: http://www.openingceremony.us/entry.asp?pid=4352)

road" architecture, which for the purposes of this paper were basically the "warehouses and factories that were built between 1860 and 1930."[48] In the 1970s, these "low-road" structures served as platforms for additional growth and the rejuvenation of old towns.

In the book *Towards a New Museum*, these "spaces for artists" came to be known as "alternative spaces." In the mid 1970s, non-profit organizations received state and federal funding to create alternative spaces.[49] An extreme example of alternative spaces would have to be that of Donald Judd's The Chinati Foundation. Not a proponent for architecture or media culture, Judd moved to the Chihuahua Desert where he utilized 34 abandoned military hangers.[50] Ironically, the use of warehouses was more of a movement away from popular culture, but throughout the decades these buildings became precursors to the gentrification of an area. Later foundations like the Dia Art Foundation became well known for their use of alternative spaces such as Dia Beacon (utilizing a Nabisco factory) in 2004.[51]

Throughout the 1970s, the use of industrial buildings gained momentum. Museums selected "low-road" structures for their ability to be easily altered, to meet the growing needs of the occupier, and because of the general lack of public interest in the buildings themselves. Old industrial buildings often had desirable large flexible open floor plans free of restricting structural components. The high ceiling provided the needed space for contemporary art.

Warehouses were only altered, sometimes with only a fresh coat of white paint, to the extent that the building would be able to fulfill the programmatic need of the museum. The exterior remained virtually untouched. Most of these interiors had little to no historical significance and were extensively dilapidated. The changes were often documented and became a part of the permanent exhibit. If there were changes made to these buildings it would have typically been made to the entryway, because it was the easiest way to grab the attention of the users.

48 Brand, How Buildings Learn, 108-109
49 Newhouse, Towards A New Museum, 109
50 Newhouse, Towards A New Museum,113-18
51 Dia Art Foundation, *About Dia: Beacon*, 2012, http://www.diaart.org/sites/page/1/1003 (accessed November 3, 2012).

Hybrid Architecture

The final phenomenon identified in this section had previously been interrupted by the intensified practices of preservation. It is in the end of the 20th century that these buildings are regaining momentum. Hybrid architecture has added to "high-road" and "low-road" structures without bias, and reintroduced old buildings to their evolving communities. Though there have been additions in the past that have held architectural merit it has only been in the past 30 years that these buildings have received more global attention. While historical buildings were frequently being reintroduced to the public in the 1970s, they never really made the full transition to being a magnet of public interest until the 1990s with museums like the Tate. It was buildings like the Tate Modern, the Jewish Museum of Berlin, and the Louvre that have broken the proverbial ice. In the twenty first century, the additions made to many of these museums have been visibly transformed in an unprecedented way, which has supported the promotion of heritage while changing the perception of the built environment. It is clear that by the time of the Louvre's pyramid there was a new expectation of museums. It should be noted that these museums often grew on more of an urban scale at first, where the buildings were mainly connected underground (as was done with the Louvre and the Jewish Museum of Berlin).

Museums such as these are a part of a movement to bring new life to urban centers with Avant-garde forms integrated within the remnants of an industrial and culturally rich past. By the late 1990s, many established museums started to grow, often opting to further develop their existing location. In 2003, a report published by the American Association of Museums on the explosion of the number of museums stated that 12 percent of 806 museums were planning on expanding their facilities.[52] Museums started to change as their programmatic requirements have broadened and the exhibit spaces have changed. Frequently demanding additional space that could not be met by existing envelops of heritage buildings. Thus for the past twenty years, these industrial places have been embellished by contemporary additions.[53]

Daniel Libeskind and Herzog and de Meuron have broken the barrier between art and architecture. Some examples, such as the Tate Modern, CaixaForum, the Contemporary Jewish Museum, and the Mill City Museum weaved into abated hybridized buildings that defines a city's past and projects the city's future. Buildings that were once the industrial

52 Martha Morris, "Expansionism... Successes and Failures," *Museum News*, July/August 2004.
53 Victoria Newhouse, "Analysis: A Museum critic examines Herzog & de Meuron's Tate Modern in the context of other spaces devoted to the display of art.," Architectural Record 6 (2000): 110-115.

backbone of society are now formal public buildings, which are conceived as urban magnets that trigger an urban revival of culture. The introduction of these buildings as centers of reflection has created a new typology that has redefined the way we experience a building and the way that a city evolves. The reutilization of buildings from a previous era and the addition of a new avant-garde structure help facilitate the perpetuation of the historic imprint of the community while breathing new life into urban surroundings. By virtue of expanding existing buildings, museums are contributing to a perpetually adapting cityscape that will serve as a visual historic record of the cultural, social, and economic movements of the region.

This form of growth is often a result of the growing restraints on resources and urban space. It is becoming a more common occurrence for museums to physically expand their existing facilities by incorporating contemporary additions. This is not always the case, however. Museums like the Whitney have buckled under the pressure of the preservationist community and legal issues and have opted to take the route of constructing a satellite museum. While the Whitney had to make an auxiliary move into a satellite museum, many of the case studies are examples of hybrid architecture are satellite museums of larger museum (conglomerates), for example, the Tate Modern, the CaixaForum, etc.

Projects like the CaixaForum, the Tate Modern, and the Contemporary Jewish Museum have elevated the expectations of architecture, but have left preservationists concerned because most of the examples and case studies covered in this dissertation are examples of facadism, or a variation there of. Although preservationists for the most part find facadism to be undesirable, it is difficult to contest that the buildings are now being successfully used, with millions of visitors annually who can experience parts of the historic building, which remain. Additionally, the community is benefiting from the museums.

While museums have not always been the first to apply these innovative approaches to architecture, they have proliferated public awareness of the value of using this form of growth. The point needs to be made clear that this dissertation is not advocating the use of additions alone; the objective is to reinitiate collaboration between the existing fabric and additions. The fact that old buildings and additions are forms of growth shows that cities are a product of their users. Architects and urban planners lay the foundation and the people make the city their own. The next section will cover how these buildings have found their way into many urban revitalization plans.

Cultural Urbanism

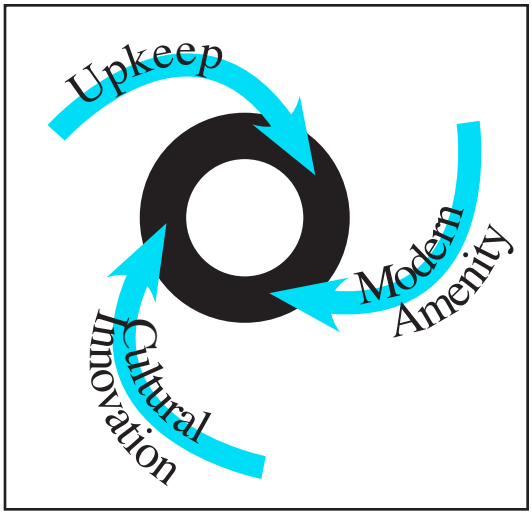


Figure: 34. The diagram above illustrates the virtuous cycle that is natural founding the built environment.

Museums have long been at the forefront of architectural innovation because of their public nature. It is no surprise that museums are frequently able to lay the path for the future of the urban fabric of a place. These institutions are often able to project the future of the built environment because they cultivate and display the works of each century's brightest minds and cultural innovators. In many ways, museums are like the testing grounds for architectural advancements; the proverbial canary in a coalmine. As discussed in a previous chapter, the integration of historic and new culture buildings has been adopted by museums around the world. The Bilbao Effect, in particular, continues to shape the vision and discourse of modern architecture that has led to the integration of the old and the new. This section will cover the Bilbao Effect, a cultural phenomenon that has captivated urban developments throughout the world. The integration of the Bilbao effect and cultural urbanism in urban redevelopment efforts throughout the world will also be addressed.

Bilbao Effect

The Bilbao Effect was coined after the success of the Guggenheim Bilbao, designed by Frank Gehry. Bilbao was originally an industrial city in Spain that received little to no global interest. Now Bilbao is as recognized as Madrid and Barcelona. Since the opening of the Guggenheim Bilbao in 1997 to 2008, the museum has received a staggering 11 million visitors, averaging about 1 million visitors a year.[54] The factor that makes the number of 1 million so significant is the fact that when surveyed in the first five or so years, 80-85% of the visitors were not from Spain, and they came specifically to experience the Guggenheim. Eleven years later, the number of foreign visitors has dropped to about 60-65%, but, at this point, the impact had already been measured, and the phrase "the Bilbao effect" already

54 Anderson, Gordon T. *The Milwaukee effect: If you build it, will they come? Second-tier cities are making big bets on high-end architecture.* August 6, 2004. http://money.cnn.com/2004/08/04/pf/goodlife/bilbao_effect/index.htm (accessed January 1, 2009).

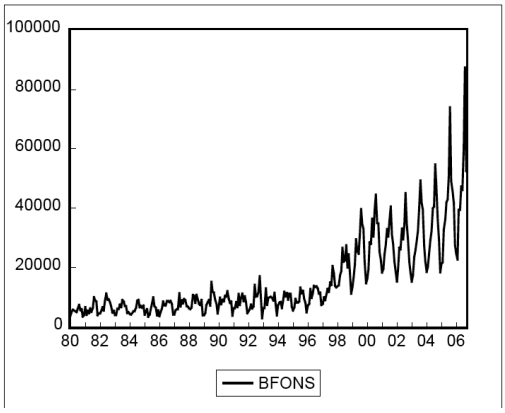


Figure: 35. The Guggenheim Bilbao Museum. (Image Source: http://kidholding.com/new/uploads/images/Musica_primeri_Bilbao_museum_muzej_Guggenheim_Musica_Kolizel_Ljubljana(1).jpg)
Figure: 36. "Overnight Stays of Foreign Visitors in the Biscay Province where Bilbao is located (monthly data from January 1980 to September 2006). Source: Instituto Nacional de Estadística (INE)." (Image Source: http://www.scholars-on-bilbao.info/fichas/MUSEUM_NEWS_The_Bilbao_Effect.pdf)

coined. Since the opening of the Guggenheim, the amount of visitors who have stayed overnight in the vicinity of Bilbao has increase exponentially, from ten thousand to the tens of thousands (as depicted by the Chart).[55] While there are examples that came before the Guggenheim in Bilbao, it is the Bilbao that fortified the importance and potential success of developing buildings that represent a new generation of a region.

The Bilbao Effect happens when an avant-garde building acts as a beacon to draw tourists from all over the world to experience architectural innovation and provide needed revitalization for an aging community. This effect typically occurs with museums because museums are cultural centers open to the public. While the Guggenheim in Bilbao is a completely new building that is self referential and makes no effort to communicate with the existing context, many interventions that followed have made the effort to integrate with their existing built environments. It only seems logical to integrate buildings that trigger the Bilbao Effect with a culturally significant building for an urban area. Displaying a historic building with an architecturally significant new building provides a bridge between a tired urban environment that is culturally significant and a modern revitalized cultural entity. Originally, the Bilbao effect was not correlated with preservation; however, in recent years the awareness of the success of cultural tourism has brought the two concepts together. The phenomenon can be seen as a marriage of the Bilbao Effect and cultural tourism. Seeing the

55 Plaza, Beatriz. *The Bilbao Effect: Guggenheim Museum Bilbao.* July 31, 2007. http://mpra.ub.uni-muenchen.de/12681/1/MPRA_paper_12681.pdf (accessed 2009).

successes of the Guggenheim Museum in Bilbao has inspired other small cities around the world to recreate the Bilbao effect by commissioning Starchitects (famous architects) to create architectural landmarks that can gain worldwide recognition.

What are the consequences of developing cities with cultural tourism in mind? The desire to push cultural tourism and create a culture based brand fuels a museum's and a city's invested interest in the retention of heritage properties. Cultural based branding of a place is to the benefit of preservation communities, because it often promotes the reuse of heritage buildings.

In the past decade, there have been several examples where the application of the Bilbao Effect, the simple reuse of a building, and an innovative architectural intervention has set off a chain of events that has given new life to an urban area. Often the sites selected for these projects are in areas that shows signs of neglect or which are in need of rejuvenation. To name a few well known projects—the Grande Pyramide du Louvre designed by I. M. Pei, and the Tate Modern, designed by Herzog and De Meuron, amongst others, have given new life to their metropolitan areas. Currently, these two museums make up two of the top five most visited museums in the world.[56] These iconic buildings feature importantly in the travel guides of the regions in which they exist, and like the Bilbao, they draw tourists in the millions to experience the buildings, art, and culture of these parent cities. Buildings such as these can provide a hundred million dollars in tax revenue alone for the local government, hundreds of millions of dollars for the local economy, and thousands of jobs. This impact creates a ripple in the economies of surrounding urban settings generating successful growth outwards.[57]

Although all cities may want a Guggenheim, not all cities can afford the upfront cost of millions of dollars. The cost of the Guggenheim in Bilbao was $228.3 million in public money,[58] a steep price for results that cannot be predicted. The investment in the Guggenheim Bilbao was earned back in surplus since its opening in October of 1997. Unfortunately, the conceptual failure of these buildings could potentially leave communities in economic ruin.

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56 The Art Newspaper, Exhibition and Museum Attendance Figures 2010, April 2011, http://www.theart-newspaper.com/attfig/attfig10.pdf (accessed November 20, 2011).

57 Culture Division, "Culture Plan for the Creative City," (Toronto, 2003). 28

58 Plaza, *The Bilbao Effect.*

Cause for concern is not limited to the actual cost of construction/renovation. With an architect's powerful ability to create a city, comes the same power of corrupting and taking a toll on the urban environment. Since these iconic building's costs are in the millions, it presents a substantial risk for the economy and the cultural identity of the urban context. Architects are pressured to be very selective in their designs while still bringing the "wow" factor. Considering all of the influences that an architect has on the urban surroundings simply by the creation of one building, an architect is just as essential as an urban designer/ planner when it comes to creating a community.

When these buildings open, visitors come. The opening of the California Academy of Science by Renzo Piano had a line of visitors meandering throughout Golden Gate Park for hours. Thousands were let in for free that day, and thousands more were turned away. "Build it and they will come" does not erase all the risk of creating these buildings. Daniel Libeskind's extension to the Denver Art Museum (DAM) did not bring the anticipated success. Since the opening, the DAM has, in fact, experienced an increase in visitors and overall revenue. Suggesting that it was not a failure in the aesthetics of the addition, rather a failure in the execution of the construction and design detail. The DAM was fraught with extensive leaks that required the museum to be closed down for a short period of time.[59]

While the Bellevue Art Museum in Washington is not an addition to an existing building, it is an example of how the pursuit for the Bilbao Effect is not simply achieved through innovative design. The surrounding context has to be considered, as well as the needs of the museum's program.

An argument often made against these buildings is that they are not made in the best interest of the community, rather that these buildings are mere reflections of an architect's ego. In reality, these buildings were selected through design competitions where the public was able to rate and provide input, before a winner was selected. The public often has the opportunity to review several architects' proposals before an architect is even selected. Therefore, it is not the case that a single architect is commissioned to design several variations. The architects who design these buildings are often the most influential architects of a generation, such as Daniel Libeskind, Frank Gehry, and Herzog and de Meuron. Community involvement is good practice and enables some of the buildings to get government funding. In fact, if these museums receive government financial aid, it is

59 David Hill, Leaky Libeskind Roof to Be Fixed at Last, October 19, 2009, http://archrecord.construction.com/news/daily/archives/091019leaky_roof.asp (accessed September 15, 2011).

often stipulated that the museum must hold a public competition. The sheer cost of these buildings and the fact that they continue to be built is a testament to the public's interest in having avant-garde additions.

In the world today more communities and governments are seeking an identity of their own. Leaders are learning the importance of allowing that identity to develop for the sake of a sense of place and to attract tourism. On that same note, it is becoming apparent that there is a need to find a way to integrate the future of a place into an existing urban environment. This is being accomplished by developing buildings that reflect the city's past and present. The public, in general, are looking for architecture that tells a story, not just fulfill a programmatic requirement. The Bilbao Effect has influenced the policies developed by many municipalities (throughout the world) when developing a plan for future urban growth, which has enabled the development of Hybrid architecture.

Policies

Governments are recognizing that arts, culture, and heritage are not only vital to quality of life, but also critical to the sustainable growth of the economy and built environment. Currently, futuristic additions are thriving and being encouraged in places like Germany, Spain, Toronto, Vienna, and Austria. Additions have taken up a cultural form of urban growth, which was initiated by the desire to keep the built environment instilled with a local sense of place. Many cities have taken measures to conceptualize an urban identity through the unique cultural, social, and economic trends that inhabit each city's physical landscape.

Urban development plans have recently fostered the development of successful buildings with the political and financial support of the government. Notable examples include the Art Gallery of Ontario and the Royal Ontario Museum for Toronto "Creative City", the Grande Pyramide du Louvre for Paris Grands Projects, the Jewish Museum of Berlin for Kreuzberg, the Contemporary Jewish Museum for San Francisco Yerba Buena Redevelopment Area, the Tate Modern for Southwark Council Bankside's Regeneration Plan, and Denver Art Museum for Denver Infill. Each of these projects was conceived with the

desired Bilbao Effect in mind. The majority of these developments cost in the hundreds of millions of dollars. All of these projects were developed around the reuse of and the addition to a heritage building, as a part of an urban plan to improve the existing built environment.

Knowing the potential success of these buildings, governments are taking the risk and investing in these cultural buildings that unite the past and the present. Public grants and private donations provide many museums with the opportunity to be more explorative architecturally, often enabling them to hire affluent Starchitects to create outlandish additions. As a result of conservation policies and urban growth strategies, the cities discussed above and others have a plethora of heritage buildings that have been used as platforms for the exploration of integrating contemporary buildings into the historical urban fabric.

Toronto calls their approach to cultural urbanism a "Creative City," with cultural architecture at the forefront. Toronto's Creative City is all about finding a balance between creation and retention, while favoring a strong and particular sense of place. To attain this sense of balance the government strives to create a sustainable relationship between "economic prosperity, social equity, environmental sustainability and cultural vitality."[60] To ensure and create a high quality of city life, Toronto has put arts, culture and heritage at the forefront of its urban development plan. Creating a sense of identity plays a significant role in the quality of city life.

In May 2002, $233 million of Canada /Ontario Infrastructure Programs fund was pledged to seven major capital projects. In addition to the federal and provincial governments' contributions, over $700 million in private capital was raised to support these public betterments. Canada has supported civic projects like the National Ballet School, OCAD, Telus Center, Terrence Donnelly Centre, and two affluent museums: AGO and the ROM.[61]

A similar resolve abides in Paris, France. The zoning cap on the building height within the city of Paris was in reaction to poorly conceived efforts of redevelopment encountered in the 1960-1970s. In the thirty years since the zoning cap the city as a whole has often been referred to as a museum itself. This ban was lifted despite an overwhelming two thirds of those polled being against the lift. While the motive that removed the three

60 Culture Division, "Culture Plan for the Creative City," 22
61 Culture Division, "Culture Plan for the Creative City," 11

decade old zoning height limit of 37 meters was not made in the best interest for keeping the city of Paris an urban museum, it was made in the best interest for the health, safety, and welfare of citizens of Paris.[62]

Opponents have questioned whether the cultural development promoted by the Canadian government is putting culture up for sale, by using heritage buildings as a platform for both cultural and economic growth. A similar concern has been raised in Paris with regards to whether the lifting of the zoning heights is threatening the cultural identity of the historic city. The current development occurring within these cities makes it evident that both Toronto and Paris remain thriving international cities with a dynamic cultural identity and a persisting sense of place.

In the Case Study section, several examples of developments around the world that illustrate the possibilities of the growth of the built environment is examined, including examples found in Toronto and Paris.

62 Henry Samuel, Paris mayor proposes high-rise changes to city skyline, July 08, 2008, http://www.telegraph.co.uk/news/worldnews/europe/france/2269014/Paris-mayor-proposes-high-rise-changes-to-city-skyline.html (accessed November 15, 2011).

Figure: 37. These are but a few of the building that case studies will be conducted on. Left to right: the Tate Modern and its proposed addition, the CaixaForum, the Military History Museum, and the Royal Ontario Museum.

Case Studies

As discussed in the previous Chapter, the Bilbao effect has taken on many forms, one of which is a heritage-based form of cultural urbanism. As the phenomenon of the Bilbao Effect has gained global momentum, there are more example of innovative additions being integrated to heritage buildings throughout the world. This section will illustrate that landmark buildings never stop evolving. All of the examples covered here have played a critical role in the development of additions that are reflective of their time and place. Each has a distinct spatial relationship between old and new, and exhibits a juxtaposition of styles.

These case studies will be broken down into four sections: The History of the Building's Evolution, the Site and Surrounding Context, The Growth and Preservation Strategies, and General Observations that have contributed to the success or failure of these buildings. In the end it will be made clear that adding to historic buildings has far more potential to be beneficial than destructive when it comes to the rehabilitation of historic buildings.

The History of the Building's Evolution will cover the general history of the building. Because some of these buildings are centuries old, their history will encapsulate the time period that the building has existed as a museum.

Site and Surrounding Context will briefly cover the cultural and physical environment that has informed the design of the addition.

Growth and Preservation Strategies will cover measures taken to preserve heritage buildings; a review of parts that were demolished; and a consideration of the design principles used to integrate the addition; such as materiality, scale, proportion, and points of connection.

Finally, Observations will cover the public's acceptance of the building and its general success.

There is a wide range of options when making an intervention to any existing structure. Each of the examples covered in this section has varying attributes and techniques that make the addition distinguishable from the existing building, while managing to retain historically defining features. Some design solutions have contributed to the buildings' success, whereas others have left the building/compound additions as disparate components of the whole. This dissertation will identify the successes and failures, various approaches to incorporating additions onto buildings, and other contributing factors as they apply.

Nine case studies were selected to provide insight to why their additions represent a form of growth and why these institutions continue to use such unconventional archetypes. Selection of the case studies was based on three criteria: The building had to be a museum, there had to be a major addition, and the addition had to be unconventional and reflective of current technologies. Several different approaches to integrating the additions are presented: The first two are extensions that have been linked by only a passageway creating limited visual relationship between the existing building and the extension, such as the Louvre and the Jewish Museum Berlin; these additions were more of an urban scale addition. Then, there are four examples of facadism: the Tate Modern, the CaixaForum, the Contemporary Jewish Museum, and the Moritzburg extension. Then, three examples of buildings that are directly connected to the original building utilizing wrapping; such as the AGO addition that radiates outwards encompassing each successive addition with the exception of the original building which sits just on the periphery of the extensions. Then there are bisecting additions, such as the Military History Museum's addition, which bisects the core of the original building, and then plugging in type additions, like the ROM's intervention that sits in-between two wings of the building. This last approach is ideal and has minimal impact on the original building, when designed appropriately. Only one of the selected case study museums was originally designed as a museum. All of the other case studies are museums that had moved into industrial buildings, mansions, or castles.

Similarly, the conclusion of this dissertation will focus on five brownstones that have been integrated into the Whitney Museum. Each of these case study buildings has elements that can be referred to when considering this simulation designs.

Louvre

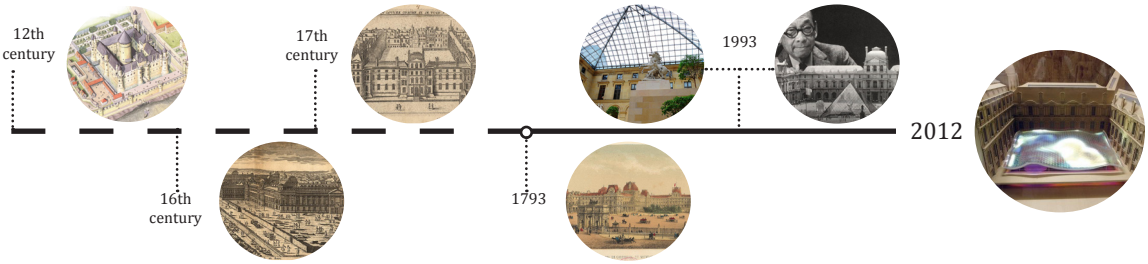


Figure: 38. The Louvre's time line of how it has adapted throughout the centuries. Starting with the fort and ending with the New Islamic Wing. 1793 indicated when the Louvre started to make the transition into a museum.

The most iconic part of the Louvre is the Glass Pyramid built in the 1990s, which sits in the middle of the Cour Napoleon. Though this addition was highly contested it has become an internationally acclaimed success, and has been embraced by many who opposed it. The Louvre has successfully proven that avant-garde additions can be successfully integrated with a heritage building. In fact, these buildings have the potential to be so successful that the Louvre has just completed the expansion of an Islamic wing (that has been long in the making) in September 2012.

History of the Building's Evolutions

The Louvre museum, of all the case studies selected, has the longest and most tumultuous architectural history of growth dating back to the 12th century. The evolution of a building in an old city like Paris tells an interesting story, because the Louvre was actually able to witness the growth of Paris spanning over nine centuries. The Louvre is an internationally recognized museum. It had been a government building: A home for squatters, a palace, and the town's fortification. The development of the Louvre, as it is today, has been a long process fraught with delays, stillborn projects, redesign, and even revolution.

The history of the Louvre is broken down into 5 major periods: The Middle Ages; From the Louvre to Tuileries; The Classical Period; From Palace to Museum; and The Grand Louvre.[63] For the purposes of this dissertation, the two final periods that the Louvre was a museum will be covered in greater depth than the first three.

63 Byard, The Architecture of Additions, 67-69

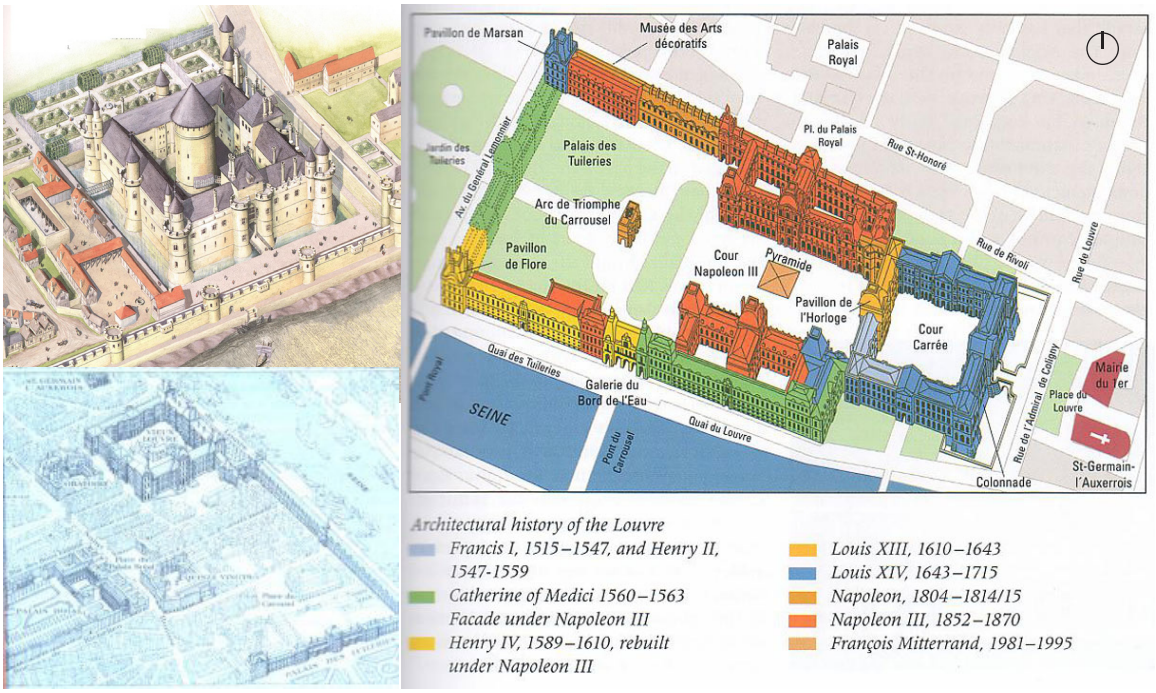
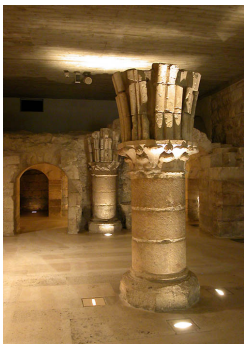


Figure: 39. "The Louvre in the year 1190 A.D. A fortress against the Vikings." Little remains of the Gothic Fort. (Image Source: http://harlanlewin.hubpages.com/hub/Paris_Holiday_The_Louvre#)
Figure: 40. "Map of the Louvre and surroundings in the 17th Century." (Image Source: http://harlanlewin.hubpages.com/hub/Paris_Holiday_The_Louvre#)
Figure: 41. This map visually identifies the different development phases of the Louvre, however it does not identify the enclose section of the Richelieu Wing and the most recent addition of the Islamic Wing. (Image Source: http://classes.uleth.ca/200103/art2850b/louvre-pics/louvre-history-diagram.jpg)

Of the original fortification commissioned by Philippe Auguste in the Middle Ages, there is little that remains: only the Salle Basse (lower Hall), which is found in the interior of the western section. By the middle of the 14th century, the Louvre was no longer used as a defensive fortification. Raymond Du Temple, the architect for Charles V, transformed the fortress in 1364 into a grand palace, which remained virtually unaltered until 1527.[64] In 1527, Francois I demolished the Grosse Tour and started the building's transition from a Medieval edifice into a Renaissance palace. In 1540, Francois' architect, Pierre Lescot, and, Jean Goujon, a sculptor, developed the west wing of the court in a Mannerist style, which is known for its excessive approach to design and ornamentation. In 1546, the medieval west wing was demolished and replaced with a Renaissance style building by Lescot; the medieval south wing was demolished.[65]

64 Louvre, "History of the Louvre," Louvre, http://www.louvre.fr/llv/musee/histoire_louvre.jsp?bmLocale=en (accessed July 31, 2011).
65 WebMuseum, Le Grand Louvre: History, October 14, 2002, http://www.ibiblio.org/wm/paris/hist/louvre-history.html (accessed September 8, 2011).



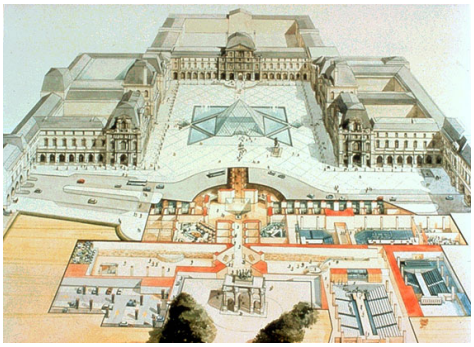


Figure: 42. The Salle Basse (Lower Hall) "Louvre médiéval - crypte Sully." (Image Source: © Musée du Louvre / A. Dequier)
Figure: 43. "Exploded view of the Grand Louvre project" illiterates how the majority of the new space is subterranean. (Image Source: © EPGL / Louvre)

Louis the XIII demolished part of the medieval citadel and started to develop the de l'Horloge, planning to quadruple the size of the Louvre. Louis the XIV completed the quadrangle by developing the western part of the cour du Louvre, while doubling the size of the Petite Galerie at the start of the 17th century.[66] At the beginning of the 16th century, the two buildings were linked creating the Grande Galerie.

From Palace to Museum

During this period, the museum was being transformed from within. There were no major additions or transformations; however, it was during this period that the art collection grew and several satellite exhibit spaces were created. It was only in 1793, that the Louvre finally became a Museum. As a museum, it has continued to transform to meet the needs of its patrons and the arts. Two years before the Louvre was open to the public, according to the Constitution of 1791, all of the King's possessions became a part of a national collection.[67]

The Grand Louvre

The Grand Louvre was the final thrust into becoming what the museum is known as today. Louvre's pyramid is the most celebrated and controversial enhancement. On September 26, 1981, plans were announced to rehabilitate the Louvre to function fully as a museum. On March 30, 1987 I. M. Pei's Glass Pyramid was inaugurated. The pyramid was literally the tip of an iceberg for the major rehabilitation of the Louvre that was commissioned by the Establishment Public du Grand Louvre (EPGL) on November 2, 1983. Most of the work was done underground. The Finance Ministry formally occupied the area where the Richelieu Wing is located and additionally this area accounts for the majority of

66 WebMuseum, Le Grand Louvre: History.
67 Seattle Art Museum, History of the Louvre, May 11, 2008, http://www.seattleartmuseum.org/exhibit/interactives/rome/pdf/timeline_france.pdf (accessed September 20, 2011).


Figure: 44. "Archaeological dig in the Cour Napolean, 1983-98." © EPGL / Louvre
Figure: 45. "The future site of the Department of Islamic Art from the Louvre, June 30, 2010 in Paris." (Image Source: http://translate.google.com/translate?hl=en&langpair=fr%7Cen&u=http://mejliss.com/node/1537916)

the useable space gained in I. M. Pei's expansion.[68] This undertaking was initiated by Charles deGaulle (the French President) costing more than a billion dollars and added a total of 650,000 square feet.[69]

All three of the Richelieu Wing courtyards were enclosed beneath a glass roof, for additional circulation and exhibit space.[70]

In 2005, a design competition was held. Mario Bellini and Rudy Ricciotti submitted the winning design for the New Islamic Wing. It was originally projected to be completed in 2009, due to political, social, and economic unrest the project was postponed. The initial projected cost was 67 million euro.[71] However, at the start of the construction of the New Islamic Wing in 2010, the cost of the project increased to 98.5 million euro. Once completed in 2012 it cost 100 million euro.[72] Walid bin Talal (the Saudi Prince) donated 20 million euro to the Louvre for the construction of the new Islamic Wing. The French Government contributed 31 million euro, nearly a third of the total cost of the Islamic Wing. The sum of the difference was covered by a variety of French companies and other donations. The

68 Byard, The Architecture of Additions, 67-69
69 Paul Goldberger, *Pei Pyramid and New Louvre Open Today*, March 29, 1989, http://www.nytimes.com/1989/03/29/arts/pei-pyramid-and-new-louvre-open-today.html?pagewanted=all&src=pm (accessed October 29, 2012).
70 Louvre, "History of the Louvre."
71 Roukaya19, At the Louvre, and soon a large veil to cover the Islamic Art, June 30, 2010, http://translate.google.com/translate?hl=en&langpair=fr%7Cen&u=http://mejliss.com/node/1537916 (accessed October 8, 2011).
72 Jennifer Polland, *Business Insider*, September 21, 2012, http://www.businessinsider.com/the-louvre-opens-islamic-art-wing-2012-9?op=1 (accessed November 6, 2012).

selected site for the new Islamic Wing is within the neo-classical Visconti courtyard, named after the architect and constructed between the 17th and the 19th centuries.[73] The Islamic Wing consists of two levels, occupying the ground floor and the basement.[74]

Site and Surrounding Context

Being that the Louvre has been around for centuries, it has witnessed the change in the surrounding context of Paris. In many ways, the Louvre exemplifies the way buildings historically learn, evolve, and grow. The site originated as a fort for the protection of the town, and the city of Paris literally grew around the Louvre. It is located adjacent to the Seine River. The Louvre is at the heart of Paris and a part of the Seven Grands Travaux, a large movement to rejuvenate the urban core of France.[75] The Louvre occupies more than 40 acres.[76]

Growth and Preservation Strategies

Throughout the history of the Louvre, there have been extensive changes. Before it became a museum, the additions were often cannibalistic with each successive addition either enveloping the original building or branched out from it, creating a quad. After becoming a museum, the original structure was retained and often enclosed.

In 1983, archaeologists carefully excavated the Cour Napoleon before any construction was undertaken on the site. After the completion of the Pyramid, the restoration of other wings continued, in particular, the oldest section of the Louvre, Cour Carree. In 1997, the Sackler Wing in the Cour Carree was refurbished providing nearly double the exhibition space in that wing.[77] In 2010, the same excavation process was undertaken with the Visconti courtyard, in preparation for the Islamic Wing.

The additions have utilized distinctly different materials in conjunction with form and style. When the Pyramid was unveiled, it was widely perceived as being too pretentious an addition to such an old national treasure. The juxtaposition of the materiality of the glass and metal walls of the new pyramid against the limestone of the historic building is what

73 John Tagliabue, "Louvre Gets $20 Million for New Islamic Wing," The New York Times, July 28, 2005, http://www.nytimes.com/2005/07/28/arts/design/28louv.html?pagewanted=2&adxnnl=1&adxnnlx=1311993736-nJ9DDTyQymXCIWL1Dt16Gg (accessed August 02, 2011).
74 Roukaya19, At the Louvre, and soon a large veil to cover the Islamic Art.
75 Victoria Newhouse, Towards A New Museum, 171-76
76 Paul Goldberger, *Pei Pyramid and New Louvre Open Today*.
77 Louvre, "History of the Louvre."

makes the Louvre such a controversial case study. The recent introduction of the Islamic Wing takes the juxtaposition of form to a new level for the Louvre. Once again, the addition to the Louvre utilizes glass and metal, this time overlaid with a gold metallic mesh. However, the form of the new wing is whimsical and curvy unlike any existing element found at the Louvre.

Observations

Of the built museums covered in this dissertation the Pyramid at the Louvre is the most highly contested by the public and was only realized because of support from the government.[78] The Pyramid was envisioned as a beacon added to the old 1793 museum, and it was just that, a beacon to people around the world. I. M. Pei is truly a visionary. He drew upon an age-old enigma that sits in the middle of the desert, and created a city edifice representing the future of architecture. I. M. Pei was tasked to design an addition to an iconic structure that invoked a projected future for the Louvre and the city of Paris. He conceived an addition as a transparent and elegant view port for one of the oldest museums dedicated to sharing the world's history, mystery and ingenuity. If the Louvre were looking for practicality, they would have asked for the construction of a subway entrance. Perhaps in the future this international icon will undergo another expansion.

Being that the Louvre was completed over two decades ago, it is able to provide insight on the longevity of avant-garde additions. In 2009, as the Grand Pyramid at the Louvre was celebrating its twentieth birthday, The *Fast Company* took note of the misdirected criticisms of the Pyramid and praised its success.[79] In Victoria Newhouse's book, *Towards Museums*, she addresses the failures of the Louvre's glass Pyramid, designed by I. M. Pei. She argues that relative to the Centre Pompidou, the modifications of the Louvre are not successful. She makes this point by critiquing the circulation of the Louvre; for its inability to handle the large crowds. She also compares the opening of the Centre Pompidou which was built 16 years earlier and its ability to draw a larger number than the Louvre.[80] However, in *Museums NOW*, Philip Jodidio, makes the point that the Louvre received over 8 million visitors (in 2008), making the addition a success being that it was designed to handle approximately 5 million when it was completed in 1993. Since its completion, the

78 Victoria Newhouse, Towards A New Museum, 171-76

79 Ken Carbone, *Viva Le Louvre! At 20, I.M. Pei's Controversial Pyramid Defies Critics*, April 19, 2009, http://www.fastcompany.com/1271948/viva-le-louvre-20-im-peis-controversial-pyramid-defies-critics (accessed November 20, 2012).

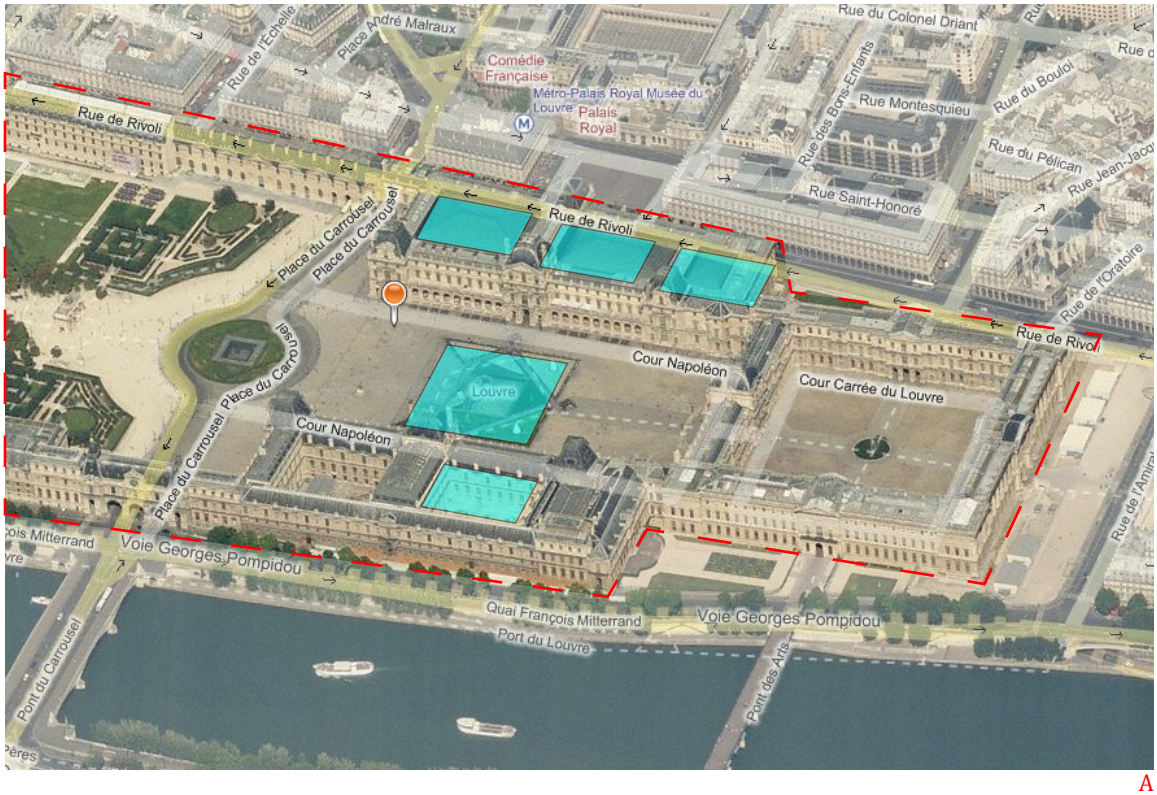
80 Victoria Newhouse, Towards A New Museum, 171-76

Pyramid has doubled the annual visitors to the Louvre. The addition's success is no longer a matter of opinion, it is now a fact. That I. M. Pei's design for the Louvre has exceeded the projected expectation of visitors is evidence that avant-garde additive architecture can play an integral role in the success of existing buildings. I. M. Pei's extension to the Louvre was not and is not a failure.[81]

Now the Pyramid itself has become a national treasure; with millions of visitors flocking to the Louvre and I. M. Pei's Pyramid annually. This building is a revered architectural edifice, the success of this example, has made the world more open to adventurous architecture.

This case study illustrates the gradual reemergence of additions to heritage buildings. It is also an example of how at first additions were made on an urban scale. However, with the significance of the Louvre the most recent addition has opted to a subterranean addition, thus it does not illustrate how additions are now integrating with heritage buildings directly. Predominantly the Louvre is important because it illustrates a long history of growth and adaptation and an evolution in styles representative of a period in time and the potential success of these forms of growth.

81 Philip Jodidio, Architecture Now!, 17



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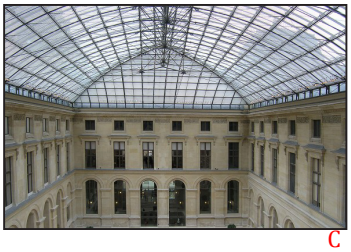


C

D

E

Figure: 46. A) Bing aerial of the Louvre. (Image Source: http://www.bing.com/maps/)

Figure: 47. B) The Louvre Before the Pyramids. (Image Source: http://www.robinsonlibrary.com/finearts/visual/museums/graphics/louvre-arc.jpg)

Figure: 48. C) The Richelieu Wing courtyard. (Image Source: http://en.structurae.de/structures/data/index.cfm?id=s0007379)

Figure: 49. D) The Louvre Pyramid. (Image Source: http://insidersvacationguide.blogspot.com/2010/11/destination-travel-louvre-paris-france.html)

Figure: 50. E) Islamic Art completed September 2012, located in the Cour Visconti. (Image Source: http://www.businessinsider.com/the-louvre-opens-islamic-art-wing-2012-9?op=1)

Jewish Museum Berlin

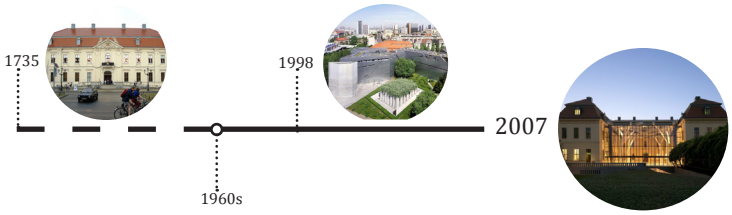


Figure: 51. Jewish Museum Berlin's time line documents the three phase of growth that the Kollegienhaus has undergone in the nearly four centuries since it was originally built. Two or which were designed by Daniel Libeskind.

Around the same time that the Louvre Pyramid was being constructed in France, the Kreuzburg district in Berlin held a design competition for an extension to the Kollegienhaus. Just as with the Louvre, the resulting extension was not perceptibly connected above ground. However, the initial addition was constructed within meters of the 18th century structure. As with the Louvre the Jewish Museum Berlin experienced success with the addition that led to another addition, unlike the Louvre the second addition to the Jewish Museum was designed my the same architect as the first. The speedy growth and success of these two additions makes this an interesting case study.

History of the Building's Evolution

Up until WWII, the original Kollegienhaus operated as the Judicial Administration, and the Supreme Court. Philip Gerlach built the Kollegienhaus in a Baroque style in 1735.[82]

During WWII, the Kollegiehaus was extensively damaged. Given its civic significance, the building was reconstructed in 1963 through 1969; the architect on record was Gunter Honow. Once rebuilt, it became the History Museum Berlin.[83]

For nearly twenty years the Kollegiehaus remained unchanged, but plans for a new extension were percolating.

82 Paul Goldberger, Counterpoint: Daniel Libeskind (New York: The Monacelli Press, 2008). 26

83 Jewish Museum Berlin, Old, http://translate.googleusercontent.com/translate_c?hl=en&langpair=de%7Cen&rurl=translate.google.com&twu=1&u=http://www.juedisches-museum-berlin.de/main/DE/04-Rund-ums-Museum/01-Architektur/02-altbau.php&usg=ALkJrhgIyXts8qlugqdairDbS7OzGK9dsQ (accessed August 11, 2011).

In 1988, a design competition was finally held to select an architect to design an extension to the Berlin Museum. One Hundred and Sixty Five architects submitted, and the following year, Daniel Libeskind won the competition. The Jewish Museum Berlin was Libeskind's first commissioned work. He had to tone down his design due to cost concerns.[84] In November of 1992, builders laid the foundation stone for the extension. Completed in 1998, the project did not officially open until 2001.[85]

The Jewish Museum Berlin (JMB), as the extension was named, is composed of 4 separate elements: the Kollegienhaus, the Blitz, the Tower of the Holocaust, and the Garden of Exile. Each of these architectural elements is perceived separately at a pedestrian level, but are all united underground. The two main structures, the Kollegienhaus and the Blitz, are united through a long corridor in the basement that begins and ends with a staircase. The new staircase starts with a descent that meets a long slightly contorting corridor that terminates at stairs ascending to the third floor. The treatment of the staircase makes the extension appear further than it really is. The addition added 166,840 sq. ft.[86]

Pleased with the success of the first extension, the Jewish Museum Berlin commissioned Daniel Libeskind again to design a new multifunctional space in 2004; which opened in 2007. The Kollegienhaus courtyard was covered up by the addition constructed of glass and steel served as a multifunctional space and lobby. The resulting courtyard is entitled "Sukkah," a symbolic shelter from the wilderness.[87]

Site and Surrounding Context

The site is located near a public thoroughfare within the district of Kreuzburg, making it both accessible and highly visible. The entire Kreuzberg district of Berlin was devastated in WWII, and was extensively reconstructed in the 1960s; at the same time the Kollegienhaus was being reconstructed. The main extension to the Kollegienhaus breaks up the rhythm of the rectilinear buildings that characterize the area, but in an unimposing way. The extension introduced a new language to the area to initiate a flow of cultural growth

84 Victoria Newhouse, Towards A New Museum, 235-39

85 Jewish Museum Berlin, Founding History, http://translate.googleusercontent.com/translate_c?hl=en&langpair=de%7Cen&rurl=translate.google.com&twu=1&u=http://www.jmberlin.de/main/DE/04-Rund-ums-Museum/02-Museumsgeschichte/01-gruendungsgeschichte.php&usg=ALkJrhg6ic6poM1ise83HOPdn82QKkFXoQ (accessed August 12, 2011).

86 Studio Daniel Libeskind, "Studio Daniel Libeskind: Studio Profile," http://www2.citycenter.com/press_pdf/Studio%20Daniel%20Libeskind%20-%20Studio%20Profile.pdf (accessed July 22, 2011).

87 Ibid.

that is reflective of the subcultures of the place. It is not healthy for the built environment to represent only a select few forms of architecture. There needs to be a spatial and stylistic variation within the architecture of every region. The introduction of a new style of building to this area does not ruin the identity or sense of place, if anything such a building fortifies a city's identity.

Growth and Preservation Strategies

When looking at all of the pieces together, though stylistically disjointed, compositionally, the Jewish Museum Berlin, tells a story of growth and change. Although the existing Kollegienhaus is not the original building constructed in 1735, it is still considered a heritage building.

The first addition was an extension through circulation. In the 1990s there was still a stigma on adding to heritage buildings, as can be seen with the criticism of the Louvre, so the addition to the Kollegienhaus was designed so that the buildings do not physically connect above ground, rather, the two buildings are linked through underground passageways.

The integration of the "Blitz" does not affect the integrity of the exterior façade; it does, however, make extensive alterations to the interior of the northwest wing of the building. For dramatic impact, the interior of the Kollegienhaus was physically altered with the introduction of a three-story stairwell shaft incorporated to allow for a time of reflection. The shaft penetrates all levels in the original building. While the concrete shaft serves no programmatic function, it does engender an emotional response that contributes to the story of the building. It should be noted that the given state of the interior prior to the extension is not known, making it difficult to determine if there was any significant lost that resulted in the introduction of the three story stairwell shaft.

Interestingly, the second extension was made less than a decade after the first. In 2007 the wings of Kollegienhaus was enclosed by a courtyard addition entitled Sukkah. Unlike the Blitz, the courtyard expansion is directly connected to the exterior wall of the Kollegienhaus, has minimal impact on the original building's integrity. Once again with this addition, there was no attempt to make reference to the original Baroque style building; in fact, the Sukkah does not even have a stylistic relationship to the Blitz. The tree like structure of the Sukkah tells its own story.

The extensions have no stylistic or historical reason to be united, but they are. There was no desire, nor effort, to link the existing 18th century building and the Blitz through materiality. Even among the new additions, there is no relationship between the Tower of the Holocaust and the Garden of Exile. They are both made of concrete, but are not related in form. While the Tower of Holocaust appears as though it was the product of the voids found within the Blitz, it is not really identical to the Blitz. . Only the Blitz is covered in zinc cladding. The addition of the Sukkah a decade later even introduced a new form and material to the collage of architectural styles that now make up the Jewish Museum Berlin. However the Blitz does develop a dialogue with the heritage building by developing a relationship with its height and their shared relationship with the street, an approach often taken when adding to a historic building. There is no attempt, however, to align the new windows with the old. Daniel Libeskind's design makes it abundantly clear that this building is intended as a place of reflection, and makes no apologies for not conforming to convention and being self-referential.[88]

Observations

Although the Blitz does not physically touch the Kollegienhaus, it does alter the original building's relationship to the site, which is the reality of an ever-densifying city.

It is important to recognize that the intention of the addition was not to be subdued and cowed; it was designed to stand in tension to the Kollegienhaus. The Jewish Museum Berlin tells the story of the Holocaust; the entire building is steeped in symbolism. The Jewish Museum Berlin was conceived as a political statement about confinement, separation, reflection, and finally the hope and great resolve experienced by the Jewish people. The Pyramid at the Louvre, on the other hand, was conceived as a stoic and forward looking view port of art and culture.

Just as with the Louvre, the building of the Jewish Museum Berlin was a test of endurance and conviction. The project took over 12 years to be realized, and it was politically contested. Commissioned by the city of Kreuzberg, Libeskind's project was, aside from the fact that the addition was far from conventional, also met resistance for the

88 Goldburger, *Counterpoint,* 8-21

six concrete towers that did not serve any conventional purpose. These spaces are called the "voids," conceived as spaces of reflection. Libeskind had to convince no less than fifty bureaucrats of the city who originally contested investing millions to construct "voids."[89]

Once the addition was completed, it sat empty for two years, during which time some 350,000 people visited it.[90] Some found the addition to be better when it was empty. Integrating art with architecture is itself a work of art. It is interesting that the question of art only arose after construction was completed. The space created by Daniel Libeskind also proposed concerns for what spaces are appropriate for art: Should art only be housed in "white box" or can art thrive in dynamic spaces as well?[91]

The Blitz, one of Daniel Libeskind's earlier works, is two-dimensional, making it very different. The exterior walls were not always vertical; originally the JMB was designed to have canted walls, which have become indicative of Daniel Libeskind's work. Unfortunately, due to budget concerns, the canted walls were straightened, reducing the cost of the extension from $120 million, to a mere $65 million.[92]

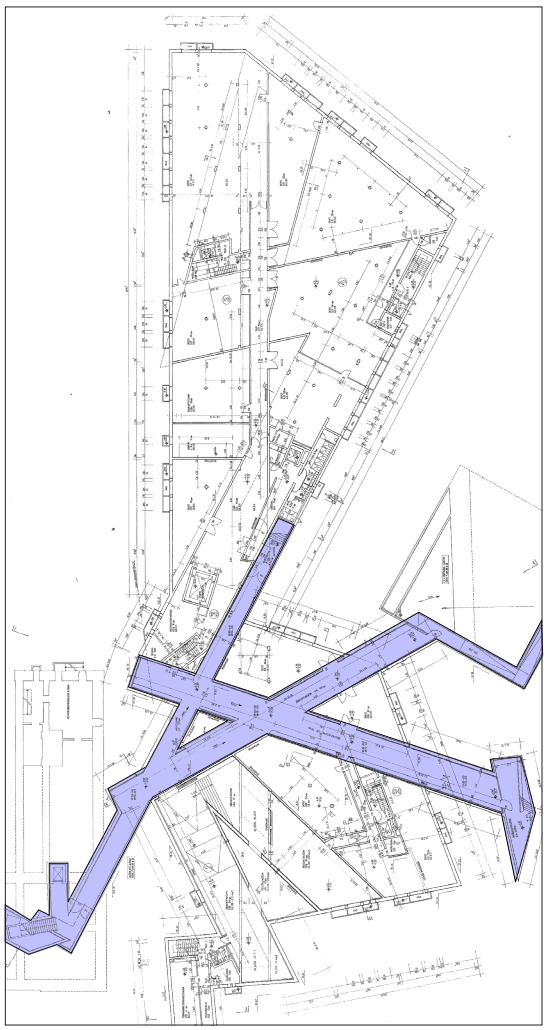
Between 2001-2008, the Jewish Museum Berlin has welcomed 5 million visitors, approximately 2,000 visitors a day.[93] The floor plan illustrates the tension existing in the museum's design. The dark entrance to the Jewish Museum Berlin addresses the dark history of the Holocaust through architecture. This project is a perfect example as to why these buildings need to be encouraged. Without the Jewish Museum Berlin, the deep emotional story of a tragic chapter in history told by this building might never have been told with the impact of architecture as art.

Potentially the problem that rises with Daniel Libeskind's solution for the growth of the Jewish Museum Berlin is that it requires the sprawling growth of the museum, which takes away from the existing open space. That is with the exception of the addition of the Sukkah, which enclosed the coeur d' honneur (three sided courtyard) of the Kollegienhaus. While the Sukkah has changed the Kollegienhaus relationship with its surrounding, it has in many ways maintained the essence of the opening by utilizing glass and employing

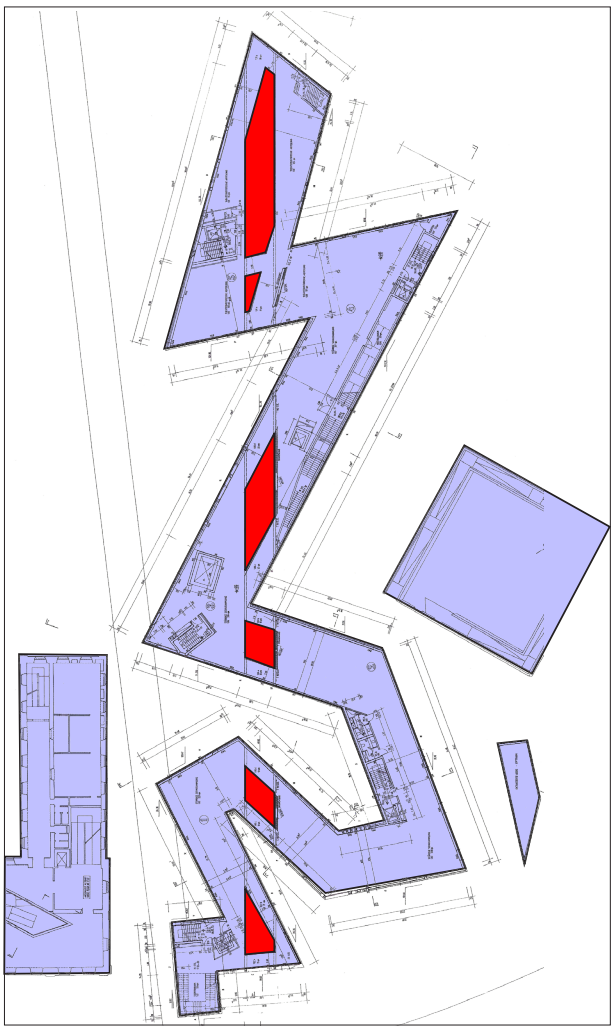
89 LeMusee Juif De Berlin Entreleslignes unfilm de stanneumann et Richard Copans.
90 Jewish Museum Berlin Foundation, *"Looking Ahead – Where Does the Jewish Museum Berlin Stand on its 10th Anniversary?"*, September 06, 2011, http://www.jmberlin.de/main/EN/06-Press/01-Press-Releases/Press-Releases-2011/2011_09_06a.php (accessed October 10, 2012).
91 LeMusee Juif De Berlin Entreleslignes unfilm de stanneumann et Richard Copans.
92 Victoria Newhouse, Towards A New Museum, 235-39
93 E-architect, Jewish Museum Berlin: Architecture Information, September 24, 2008, http://www.e-architect.co.uk/berlin/jewish_museum_building.htm (accessed July 31, 2011).

a new architectural style. The architectural style and materiality of the Sukkah bare no resemblance to the Kollegienhaus, which in turn maintain the understanding of how the Kollegienhaus once looked.

As with the Louvre, the Jewish Museum Berlin illustrates the transition from an urban scale form of growth to a more physical intervention. This case study exemplifies the potential success of these buildings. The Sukkah demonstrates the enclosing of the existing structure to gain additional space as well as protecting the enclosed portions of the existing structure. This physical approach to integrating an addition will be evident more clearly in the case studies that follow.



Basement Floor Plan



Ground Floor Plan

Figure: 52. Basement Floor Plan, the parts highlighted in blue identifies how each of the four apparently separate structures are connected through circulation in the basement. (Image Source: Counter Point Daniel Libeskind 24)

Figure: 53. The Ground Floor Plan illustrates that the separation of the architectural components. The red represents the contemplative voids that were highly contentious topic in the development of the Blitz. (Image Source: Counter Point Daniel Libeskind 25)

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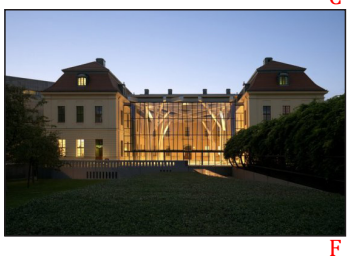

F

Figure: 54. A) Bing aerial of the Jewish Museum Berlin. (Image Source: http://www.bing.com/maps/)
Figure: 55. B) the top left Kollegienhause 1735. (Image Source: http://upload.wikimedia.org/wikipedia/commons/c/c4/Museu_Jueu_de_Berl%C3%ADn_-_Kollegienhaus_-_10_%2B_5_%3D_Gott.JPG)
Figure: 56. C) Jewish Museum Berlin 2001, "Blitz." (Image Source: http://www.cvent.com/en/destination-guide/berlin/jewish-museum-berlin.shtml)
Figure: 57. D) Jewish Museum Berlin 2001, "Tower of the Holocaust." (Image Source: http://www.historiasztuki.com.pl/images/ARCHDEKONSTR/DK-L-JewishMuseumBerlin.jpg)
Figure: 58. E) Jewish Museum Berlin 2001, "Garden of Exile." (Image Source: http://www.historiasztuki.com.pl/images/ARCHDEKONSTR/DK-L-JewishMuseumBerlin.jpg)
Figure: 59. F) Courtyard 2007 "Sukkah." (Image Source: http://daniel-libeskind.com/sites/default/files/styles/fixed_width_10/public/Key%20Glass%20Courtyard.jpg)

Tate Modern

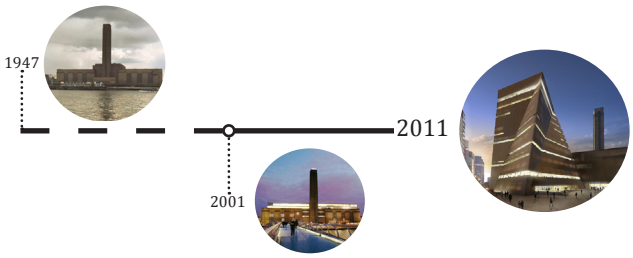

Figure: 60. Tate Modern's time line documents the three phase of growth that the Bankside Power Station has undergone in the nearly two centuries since it was originally built. Two or which were designed by Herzog and de Meuron.

The Tate Modern has been selected as a case study because of its international success, integrating the industrial past with the ever-evolving present. Currently the most visited museum in the world, its success has led to the addition of another extension designed by the same architects.

History of the Building's Evolutions

The Tate modern is actually a satellite museum to the Tate group, founded in 1897. For a long time standing the Tate group has had a long thriving history of on site physical growths. The Tate Britain actually underwent eight major growth phases before resolving to three satellite museums; the Tate Modern, Tate Liverpool, and the Tate St. Ives.[94] It appears that the Tate Modern will be perpetuating the tradition of onsite growth. Originally, the industrial building inhabited by the Tate Modern was the "Bankside Power Station," designed by Giles Gilbert Scott in 1947.[95] In 1995, Herzog and de Meuron won the design competition to add a museum addition by delicately addressing the rehabilitation and integration of the old power station, located on the Southbank of the Thames River, into the Tate Modern.[96]

Site and Surrounding Context

Many rehabilitation efforts on the South Bank breathed new life into an old industrial area; at the same time, they retained dominating features from the past. It has taken nearly five decades to make the South Bank of the Thames the social destination that

94 Tate, The History of Tate at Millbank, 2012, http://www.tate.org.uk/britain/building/history.htm (accessed March 26, 2012).

95 William J.R. Curtis, "Herzog & de Meuron's: The Tate Gallery of Modern Art," Record Volume 6 (2000): 103-109 .

96 Tate, Tate Boat, 2012, www.tate.org.uk/tatetotate/ (accessed March 26, 2012).

it is today, boasting buildings like London's City Hall, Hayward gallery, and the Tate Gallery of Modern Art. The Tate Modern is especially successful because it is the Hallmark of a rich industrial past and flourishing modern development. The Tate Modern has become a model example of how buildings and places can successfully integrate and grow while retaining their roots.

Growth and Preservation Strategies

Their design required minimal alterations of the existing fabric; they incorporated a new structure to support glowing translucent boxes that slightly project out into the Turbine Hall. The original Tate Modern is a vertical extension, which is the best form of growth. In the Tate Modern Herzog and de Meuron used the juxtaposition of the opacity and the embodied associated value of the materials to develop a relationship between the existing building and the addition. They contrasted the solid industrial brick of the power station against the semitransparent sleek glass and metal of the addition. When looking at the exterior of the building, it is difficult to see how much additional space was gained, which in many ways is appealing to preservationists. Yet the intervention has breached a gap: additions that simply meet a need versus additions appealing to a current aesthetic.

The Tate Modern is continuing the tradition of adding onto the past. Nearly ten years after the first rehabilitation of the Bankside Power Station, there are plans for another addition to the Tate Modern created by Herzog and de Meuron. This time the expansion is on the same site. However, instead of building within the existing footprint of the building, the expansion will be developed on the part of the site just above the subterranean oil tanks and connected to the original power station. The subterranean oil tanks were left untouched by the first intervention because the Tate had always anticipated a future addition to the site. Finally, with this addition, Herzog and de Meuron are taking a sustainable approach to the design of the building. This addition is taking on a completely different aesthetic and employing new technologies.[97]

97 Tate Modern, The Tate Modern Project, 2011, http://www.tate.org.uk/modern/transformingtm/design.htm (accessed December 15, 2011).

Despite the success of the Tate Modern, a hesitancy to be too unconventional is evident. The Tate Modern's newest addition is quite conservative compared to its original proposal. Rather than stacked rectilinear boxes pivoting along a central axis, the addition will be a wrapped version of that design; one that complements the red brown brick of the original power station.

Figure: 61. The original proposal for the most recent extension to the Tate Modern. (Image Source: http://archidose.blogspot.com/2006/07/this-just-in.html)

Observations

An issue that arises with these new interventions is the concern with how the space and the art coexist, because in the end the museum cannot be a success unless the spaces work. People either have an affinity for Tate's Turbine Hall, or dislike it and find that the space overwhelms displayed art. However, the Tate Modern's large spaces like Turbine Hall which is 500' by 75', with ceiling heights of 115,' are able to house large sculptures, such as those by Louise Bourgeol.[98] Additionally such large spaces are more like a prelude to the gallery than an exhibit space. Gallery designers who experience art galleries with large rooms and high ceilings feel that smaller pieces are at the "…risk (of) being swallowed up by the vast areas above them."[99] It could be argued that the absence of the ceiling line obstructing one's line of sight would make it easier for a spectator to focus on the image. Architectural historian Victoria Newhouse notes:

> …the combination under one roof of pared-down new galleries and a rough industrial setting marks an important step in the ongoing dialogue between sacred (spare, self-effacing) and profane (real world) museum spaces.[100]

This discussion about the appropriateness of spaces is another contentious topic, but as art changes so do spaces. In some cases the spaces are able to inspire the art.

In any case, the attraction of patrons to the Tate Modern originally projected as 2 million visitors annually exceeded all expectations with 5 million visitors the year the museum opened.

98 Curtis, "Herzog & de Meuron's: The Tate Gallery of Modern Art," 103-109.
99 Ibid. 103-109.
100 Newhouse, "Analysis A Museum critic examines Herzog & de Meuron's Tate Modern in the context of other spaces devoted to the display of art," 110-115.

Figure: 62. Interior of the Tate Modern. (Image Source: http://weburbanist.com/2008/06/22/7-examples-recycled-urban-architecture/?ref=search)

One of the shortcomings of the Tate Modern is that the interior does not reflect the same juxtaposition as the exterior, perhaps because the exterior walls of the old station may have needed additional support to the steel support beams.

Overall, the Tate Modern is a success that has brought the development of additions one step closer to attaining and reflecting a region's evolving identity. While the first addition was a modest introduction to the Power Station, the Tate is illustrating with the second extension that each sequential addition does not have to be a reflection of the existing building (or buildings). This point is fortified by the fact that each of the expansions made to the Tate were made by the same architects.

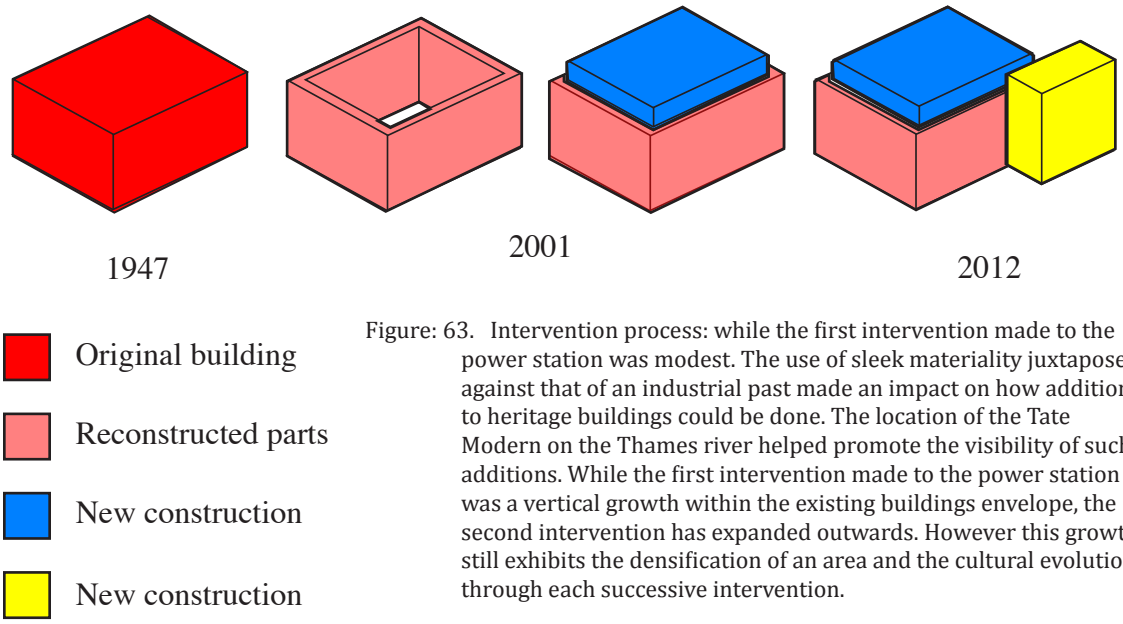

Figure: 63. Intervention process: while the first intervention made to the power station was modest. The use of sleek materiality juxtaposed against that of an industrial past made an impact on how addition to heritage buildings could be done. The location of the Tate Modern on the Thames river helped promote the visibility of such additions. While the first intervention made to the power station was a vertical growth within the existing buildings envelope, the second intervention has expanded outwards. However this growth still exhibits the densification of an area and the cultural evolution, through each successive intervention.

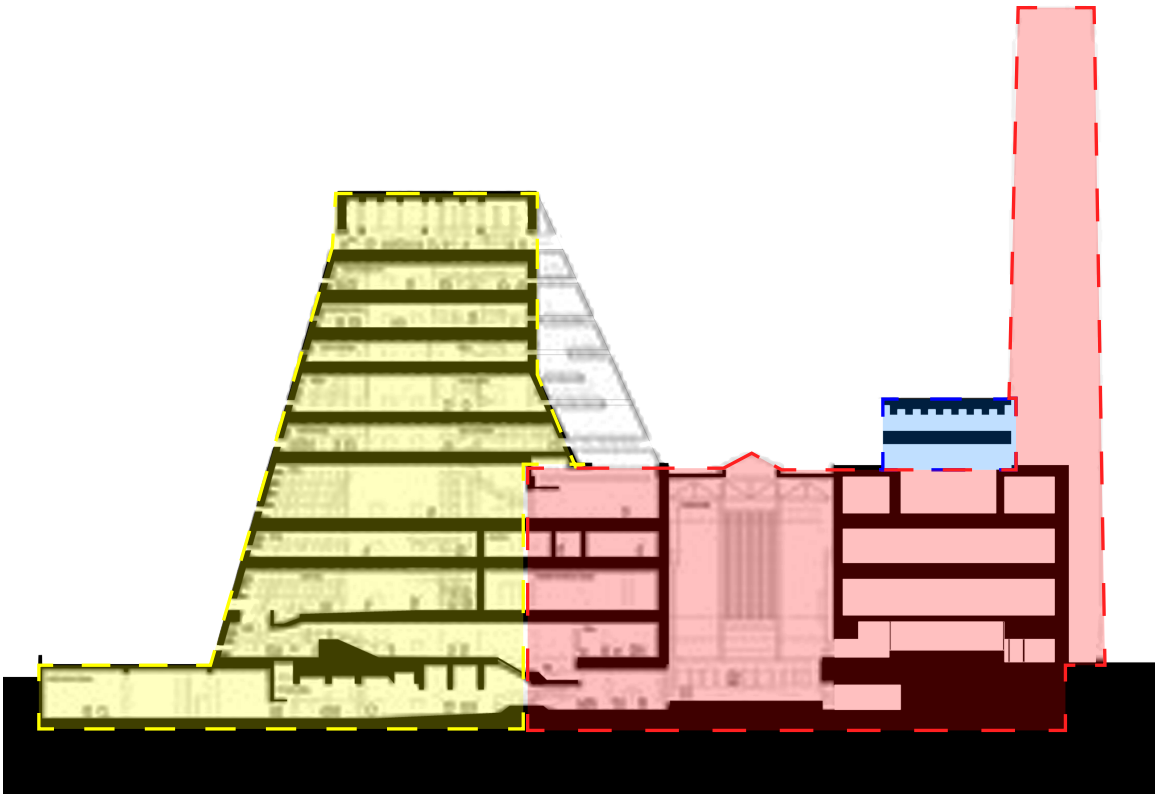

Figure: 64. Section of the Tate Modern, with an overlay of the relationships between the Bankside Power Station and the two sequential additions designed by Herzog and de Meuron. (Base Image Source: http://i202.photobucket.com/albums/aa278/fit3xl/london/section_view-1.gif)

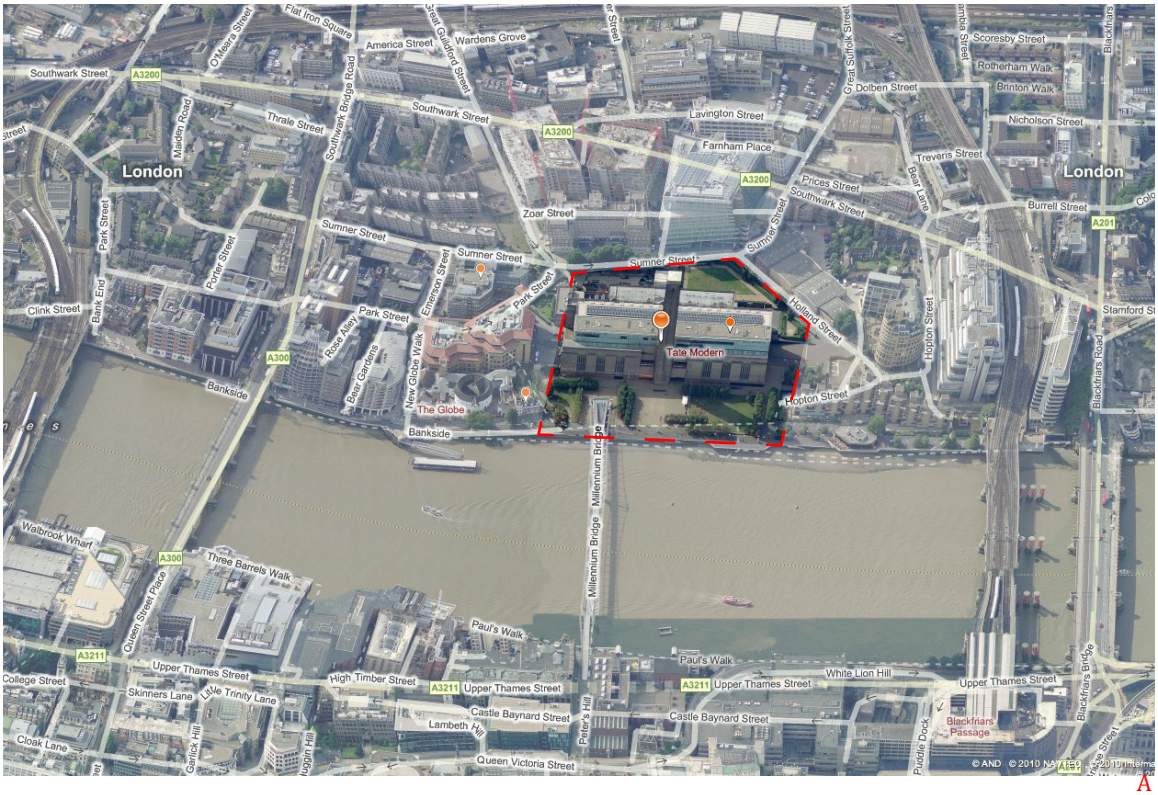

Figure: 65. A) Bing aerial of the Tate Modern. (Image Source: http://www.bing.com/maps/)
Figure: 66. B) Original building Tate Modern .(Image Source: http://factoidz.com/giles-gilbert-scott-designer-of-britains-red-phoneboxes/)
Figure: 67. C) After Tate Modern. (Image Source: http://aedesign.wordpress.com/2010/06/23/tate-modern-london-bankside-england/tate-modern/)
Figure: 68. D) The new proposal for the Tate Modern extension, projected to be completed in 2012. (Image Source: http://www.businessinsider.com/london-olympic-2012-buildings-2011-5?op=1)

Contemporary Jewish Museum

Figure: 69. Contemporary Jewish Museum's time line for addition.

The Contemporary Jewish Museum has been selected as a case study because it is a great example of new life given to a vacant building. Additionally, this project, supported by both the Contemporary Jewish Museum and the San Francisco Redevelopment Agency, struggled to become a functioning part of its city.

History of the Building's Evolutions

In 1998, The Contemporary Jewish Museum (CJM) enlisted Daniel Libeskind to design an extension and adaptation of the Jessie Street Power Substation (designed by Willis Polk, 1907) into a new home for the CJM. The desired intent was to create a lively center that cultivated social interaction and diversity. In 2005, Libeskind presented his vision for CJM, an architectural gem that highlighted a dynamic relationship between two juxtaposed forms each representing the periods in which they were conceived. The feature of the front brick Classical Revival style façade of the power station was retained as a testament to the history of the area.[101]

Appropriately representing "L'Chaim (To Life)," the symbolic meaning of "to life" is reflected with "Hebrew letters of the 'chet' and the 'yud," These symbols were to reflect the mission of the museum and the role that the substation played in providing energy to San Francisco after the 1906 earthquake. The complementary relationship of the materiality, existing reddish-orange brick against iridescent clad blue steel, emanates a sign of the relationship between old and new. Every aspect of Libeskind's design reflects the "Museum's mission to celebrate Jewish culture, history, art, and ideas within the context of 21st-century perspectives."[102]

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101 Contemporary Jewish Museum, *Daniel Libeskind and the Contemporary Jewish Museum: New Jewish Architecture from Berilin to San Francisco* (New York: Rizzoli International Publications, Inc., 2008). 107-109

102 Pacific Gas and Electric Company (PG&E), Contemporary Jewish Museum, 2009, http://www.thecjm.org/index.php?option=com_content&task=view&view=article&id=45 (accessed September 25, 2009).

Figure: 70. Front entrance. (Image Source: http://nummynims.files.wordpress.com/2009/12/jewish-museum-sf_02.jpg?w=500&h=666)

CJM was conceived as a symbol of revitalization work accomplished in the Yerba Buena district, planned by the San Francisco Redevelopment Agency. The rehabilitation of the Jessie Street Power Substation has not only provided new life for the long abandon substation, it has finally made this historic landmark accessible to the public.

The site of the existing building has a long history that extends beyond the construction of the Jessie Street Power Substation in 1907. In 1881, the original Pacific Gas and Electric Company Jessie Street Power Substation served the area until a fire and earthquake in 1906 devastated the building. The Substation was rebuilt the very next year. As with most buildings of this kind, it was decommissioned as obsolete in 1968. The Power Station sat desolate and unused for decades. Jessie Street Power Substation was added to the National Register of Historic Places in 1974[103]

Site and Surrounding Context

Located between Market Street and Mission Streets to the north and south and 3rd and 4th streets to the east and west, Jessie Street is basically an alley that runs between Market and Mission Streets and sits just to the north of the Station.

Growth and Preservation Strategies

The majority of the building's identifying features have been retained, as the selected preservation strategy for this project was facadism. Though little of the original structure remains, most of the building has been reconstructed to maintain an appearance

103 Pacific Gas and Electric Company (PG&E), Contemporary Jewish Museum.

of dilapidated portions of the original structure. The reconstruction of the roof and three of the four walls has enabled Daniel Libeskind design the extension to appear as though it is penetrating the old power station.[104]

The "blue steel skin" used in the Contemporary Jewish Museum (CJM) in San Francisco is a successful example of integration of the new with a historic building. The dynamic blue colored steel panels covering the CJM change in appearance according to the time of day, weather, and location of spectators.[105] The selection of such dynamic material adds value to the Power Station's original reddish orange bricks. It is really the juxtaposition in materiality and the spatial relationship that makes this addition so successful. The contrast seen with the exterior of the old and new is translated into the interior of the museum with the white drywall and dynamic form of the new against the textured redbrick and rectilinear walls.

104 Europaconcori, *Contemporary Jewish Museum*, 2008, http://europaconcorsi.com/projects/16726-Contemporary-Jewish-Museum (accessed November 7, 2012).

105 Dezeen, Contemporary Jewish Museum Extension by Daniel Libeskind, January 21, 2008, http://www.Dezeen.com/2008/01/21/contemporary-jewish-museum-extension-by-daniel-libeskind/ (accessed September 25, 2009).

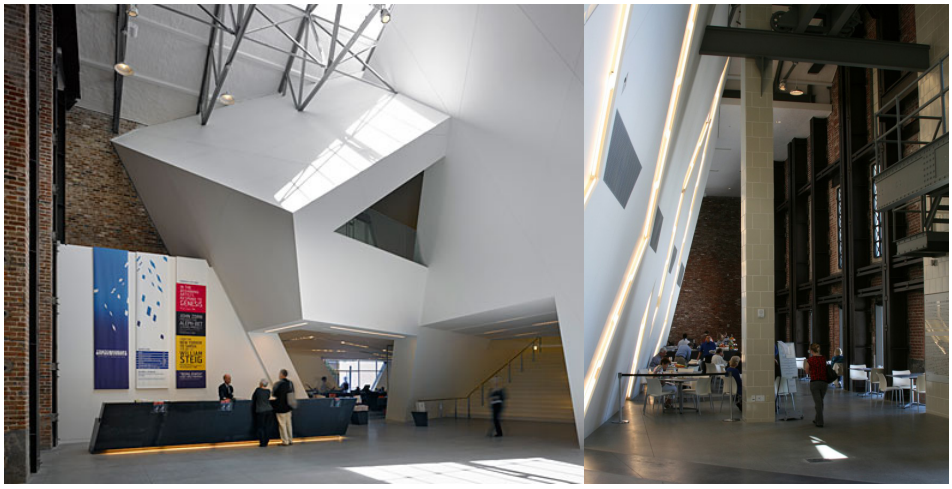
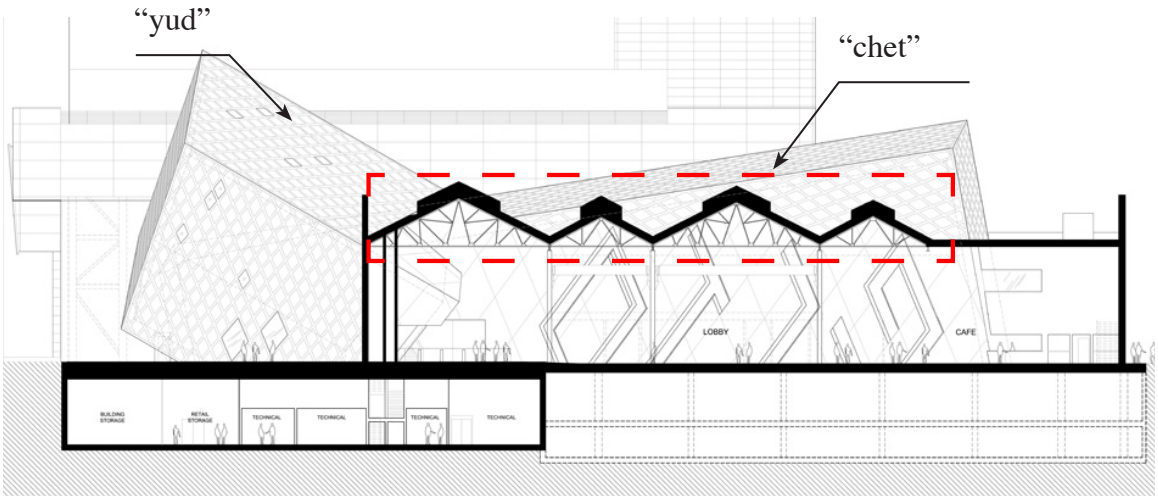


Figure: 71. Interior of the Contemporary Jewish Museum, this image illustrates the juxtaposition between the rectilinear power station and the canted forms of the new additions. (Image Source: http://nummynims.files.wordpress.com/2009/12/jewish-museum-sf_02.jpg?w=500&h=666)

Figure: 72. Interior of the Contemporary Jewish Museum, this image illustrates the juxtaposition between the white drywall and the historic front facade; the structural elements and the side walls are reconstructions. (Image Source: http://3.bp.blogspot.com/_0-AgtCzw5mI/TLJkHsA4kzI/AAAAAAAAAcA/goK4q6L-zZE/s1600/5jm.jpg)

Observations

San Francisco has always maintained spunky interest in preserving buildings and has valued a "human scale" feel for the built environment. The CJM is a notable example for its innovative design that provides a glimpse of history and a projection into the future, amidst modernity. Additionally the reuse of the power substation is a testament to the struggles encountered when striving to reuse cultural buildings. The Power Station itself took over 40 years to be reused since it was decommissioned in 1968. The reuse of the Power Station is a sign of persistence. It should not take a lifetime to make use of a vacant building.



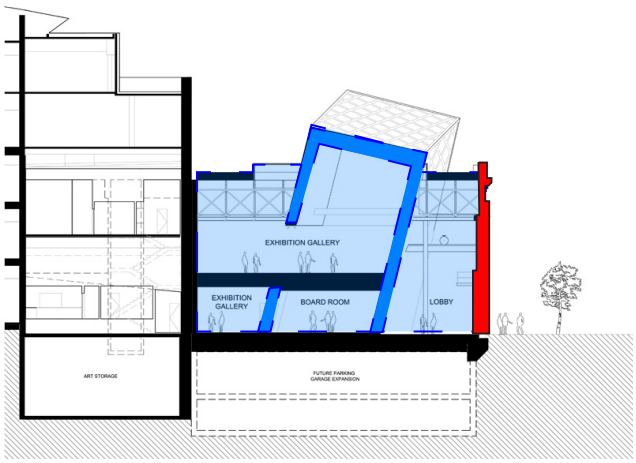
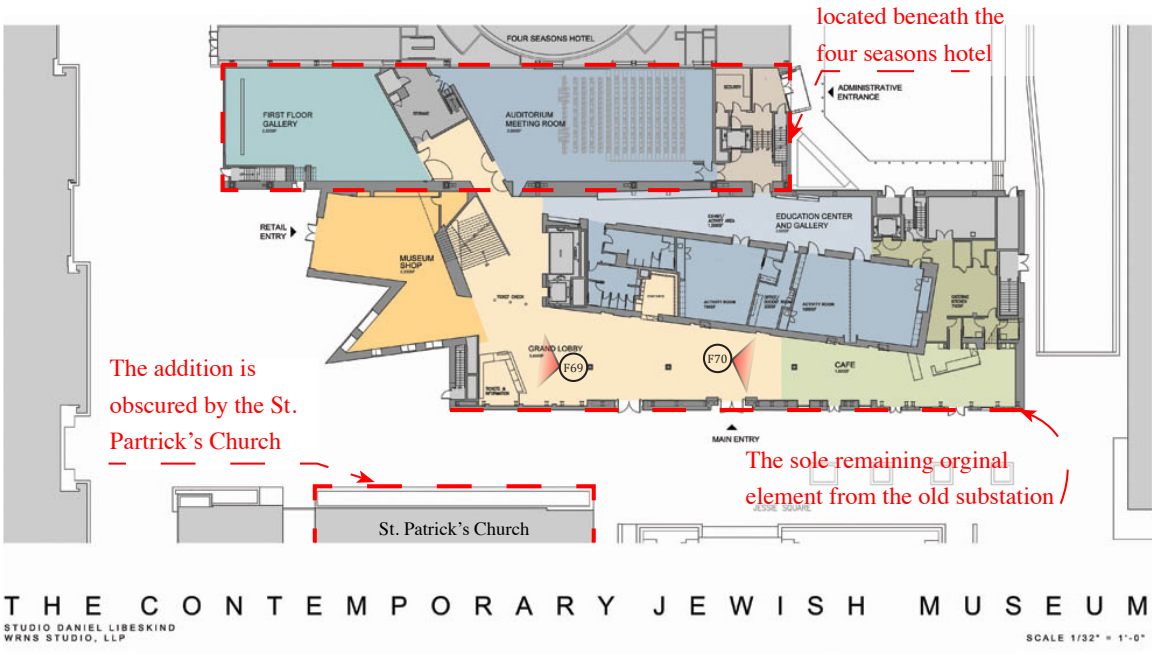


Figure: 73. Longitudinal section of the Contemporary Jewish Museum. (Base Image Source: http://www.archdaily.com/2113/jewish-contemporary-museum-san-francisco-by-daniel-libeskind-opening/)
Figure: 74. Section of the CJM identifying in red the reconstructed wall of the power station and in blue the juxtaposed form of the addition. (Image Source: Counter Point Daniel Libeskind)



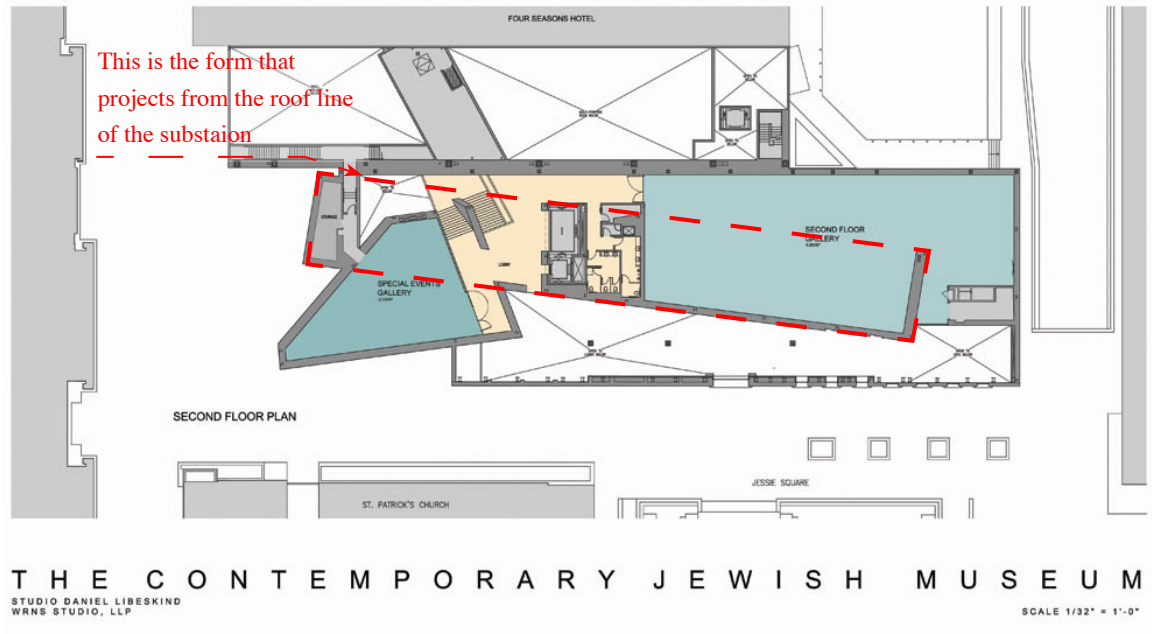


Figure: 75. First Floor of the Contemporary Jewish Museum. F69 and F70 identify angles of veiwports (Base Image Source: http://www.archdaily.com/2113/jewish-contemporary-museum-san-francisco-by-daniel-libeskind-opening/)

Figure: 76. Second Floor of the Contemporary Jewish Museum. (Base Image Source: http://www.archdaily.com/2113/jewish-contemporary-museum-san-francisco-by-daniel-libeskind-opening/)

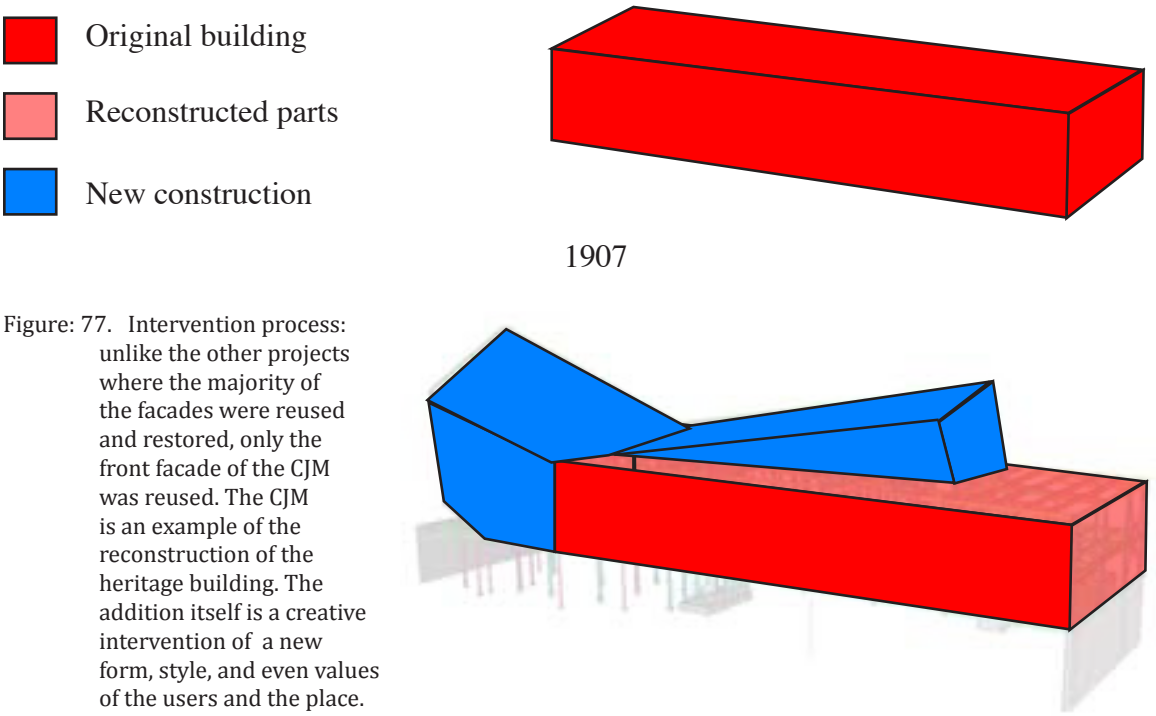


Figure: 77. Intervention process: unlike the other projects where the majority of the facades were reused and restored, only the front facade of the CJM was reused. The CJM is an example of the reconstruction of the heritage building. The addition itself is a creative intervention of a new form, style, and even values of the users and the place.

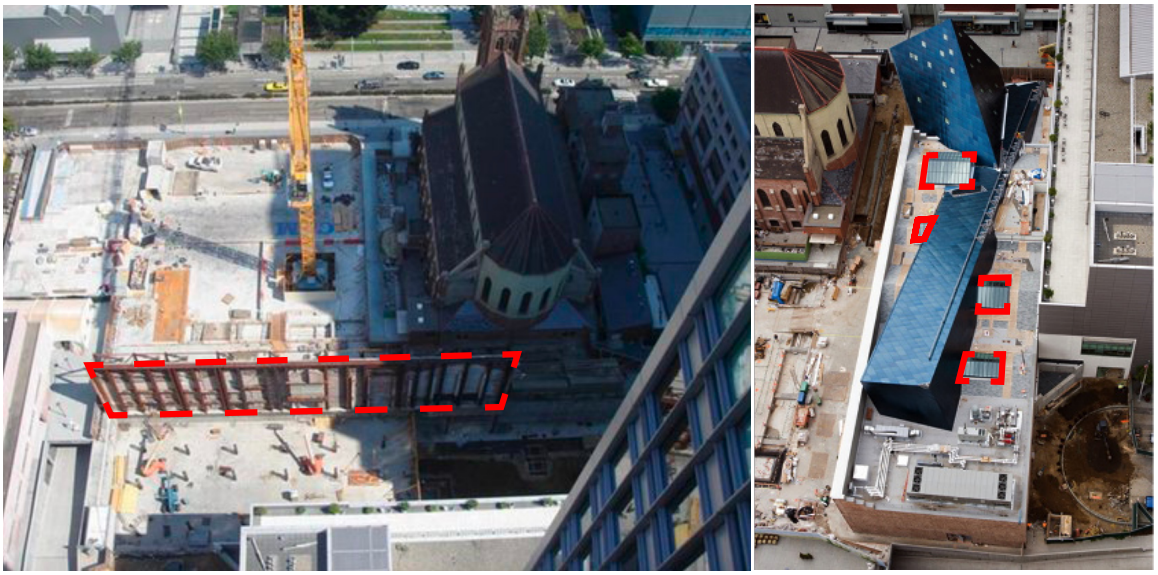


Figure: 78. Construction of the Contemporary Jewish Museum. Only the front facade of the 1981 substantion remains on the site, and only for the articulated features that were added in the 1906 reconstruction. (Image Source: http://europaconcorsi.com/projects/16726-Contemporary-Jewish-Museum)

Figure: 79. Three of the four walls of the original substation were reconstructed, even the roof of the original building was reconstructed, which explains the seamless integration of the steel blue cladded structure. The Skylights highlighted in red were all reconstructed as well. (Image Source: http://www.egodesign.ca/en/article.php?article_id=222&page=3)

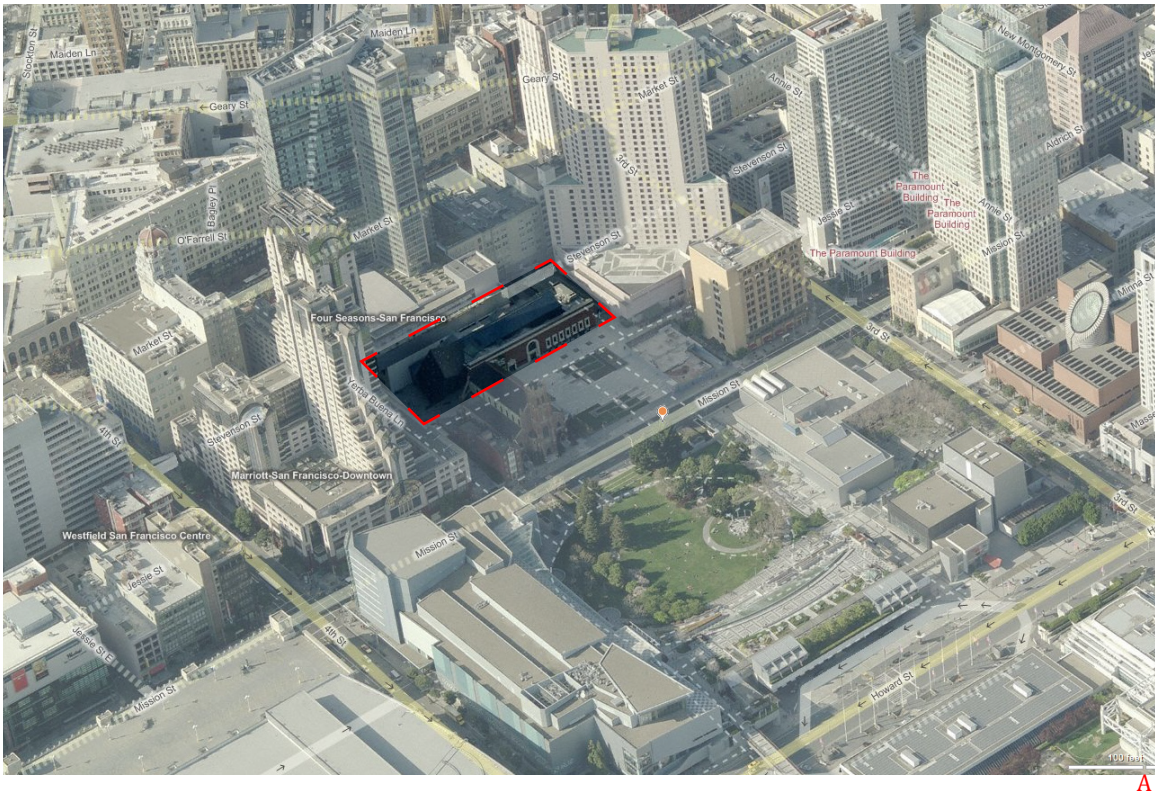


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Figure: 80. A) Bing aerial of the Contemporary Jewish Museum. (Image Source: http://www.bing.com/maps/)

Figure: 81. B) Jessie Street Power Substation. (Image Source: http://laughingsquid.com/san-franciscos-new-contemporary-jewish-museum/)

Figure: 82. C) Contemporary Jewish Museum's extension that represents "L' Chaim" = to life. (Image Source: http://www.ams-net.org/sanfrancisco/sf-info.php)

CaixaForum Madrid

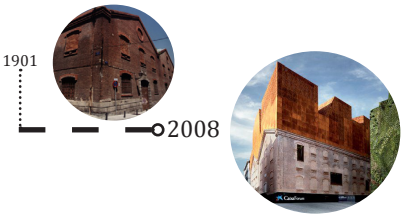

Figure: 83. CaixaForum Madrid's time line for addition made to the Central Eléctrica del Mediodía. While the intervention made in 2008 was the only addition made to the Central Eléctrica del Mediodía, the change was profound and perhaps the most drastic examples covered in this section.

The CaixaForum is another example of Herzog & de Meuron's skill in reinventing how space and place can be, and should be, experienced, especially when it comes to the relationship between old and new buildings. Herzog & de Meuron takes an unconventional approach to the age-old practice of facadism. It is a perfect example of a historic building that has been integrated into the community while simultaneously quadrupled in volume, dismissing the claim that a building should not be larger than the existing building or not visible from the street. Additionally, this chapter will address the drastic and successful approach to resolving site constraints and programmatic needs.

History of the Building's Evolutions

The Central Eléctrica del Mediodía is one of Madrid's few remnants of an industrially historical center. In 1857, Jose Batlle requested the construction of a new coal fire power plant on the site of the old La Estella candle Factory. Nearly half a century later, in 1899, the Central Eléctrica del Mediodía, designed by architect Jesús Carrasco-Muñoz Encina and engineer José María Hernández was completed in 1901. As with most industrial buildings, the power plant, based on a railway station's specification, was a prototypical example of "Madrid's neo-Mudéjar architecture" used in the late 19th century.[106]

After over a century of being the main coal power plant for the southern part of Madrid, the Central Eléctrica le Mediodía was purchased in 2001 by "la Caixa" Social and Cultural Outreach Projects. The need for the new CaixaForum Madrid was a result of the success of the two other "la Caixa" locations: Paseo dela Castellana (1980-1985) and Calle Serrano (1985-2006). The other two sites were unable to meet the growing needs of "la Caixa" for additional space to accommodate more activities for the public.[107]

106 Odra Social: Fundacion la Caixa, "CaixaForum Madrid: Press Kit," CAIXAFORUM MADRID: press kit, February 2008, press.lacaixa.es/socialprojects/show_annex.html?id=2936 (accessed July 20, 2011).

107 Ibid.

Figure: 84. Aerial of the CaixaForum. This shows the volume of the addition, and where the height of the original building. (Image Source: http://farm2.staticflickr.com/1413/14701 40246_494e343d6a_z.jpg)

Due to the physical state of the Central Eléctrica del Mediodía, there was little alternative to facadism. The existing structure was ill-equipped to handle the programmatic needs of the popular activities provided by la Caixa. Herzog and de Meuron was commissioned to create an expansion and restoration of the old Power Station's envelope.

The redevelopment of the Central Eléctrica del Mediodía included the neighboring gas station, which was demolished. The site that housed the gas station became a public plaza. In addition to the funds provided by "la Caixa," the project also received funding from Madrid's city council.

Site and Surrounding Context

The old Power Station sits in the middle of the cultural and historic district of Madrid. Originally, the power plant was surrounded by "The block of buildings, covering 1,934 m2, … made up of Calle Gobernador to the north, Calle Almadén (formerly Travesía de Fúcar) to the south, Calle Cenicero to the east and Calle Alameda to the west."[108]

Growth and Preservation Strategies

The intention of the project was to highlight the history of the place and the future of the region. Unfortunately, few remnants of historically significant industrial buildings such as the Power Station exist. It was imperative to the architects to figure out how to give new life to the old Power Station. The CaixaForum Madrid Press Kit expressed the desire for the new museum to develop a cultural magnet "combining tradition and modernity."[109] To

108 Odra Social: Fundacion la Caixa, "CaixaForum Madrid: Press Kit"
109 Ibid.

create such a magnet, Herzog & de Meuron envisioned a rehabilitation of the facades "using traditional materials and techniques, regaining its original appearance" [110] and then infilling the interior of the building with an inventive new architectural style that flows out from both the top and bottom of the building.

Herzog and de Meuron are masters at making materiality come alive through textures, and proportion. Their use of perforated cast iron panels adjacent to textured panels breaks up the mass crowning the old Power Station and gives new life to the public center. The rusted cast iron color of the addition simultaneously relates with the color of the Power Stations brick.

In the case of the CaixaForum, the architects Herzog and de Meuron went one step further and literally made the building a part of the museum's permanent collection by excavating the stones beneath the brick at the street level and placing the entrance in-between the original and the new parts of the museum and closing up all of the windows. The interior of the building was completely gutted, with two additional floors added to the top, and two subfloors, which quintupled the interior space of the original Power Station. This was done to fulfill the "La Caixa" programmatic requirements. The original Power Station measured 2,000 m^2 (21,520 sq. ft.), once the expansion was completed, the new CaixaForum had 10,000 m^2 (107,600 sq. ft.) of space to work with.[111] The resulting intervention made the classified brick shell of the Power Station appear to defy gravity. The excavation beneath the building was also a way to attain extra space without making the building too tall, like the Tate Modern, is a vertical extension.

Observations

While the development of the CaixaForum cost over 60 million euro, it has exceeded all projected visitor.[112] When the CaixaForum in Madrid is compared to all of its predecessors, it is apparent that the CaixaForum is successful. In the first year alone, there were 1,914,331 visitors.[113]

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110 Juan Antonio Garcia, Caixa Forum Madrid and the last vertical garden of Patrick Blanc, 2004-2009, http://www.zeleno.eu/en/articles/385-caixa-forum-madrid-and-the-last-vertical-garden-of-patrick-blanc.html (accessed November 10, 2009).

111 Odra Social: Fundacion la Caixa, "CaixaForum Madrid: Press Kit."

112 Ibid.

113 Kirsten Kiser, Herzog & de Meuron CaixaForum Madrid, March 31, 2008, http://www.arcspace.com/architects/herzog_meuron/caixa/1caixa.jpg (accessed October 16, 2009).

The fact that the CaixaForum has been able to quintuple its useable space demonstrates that the concerns preservationist have can be mitigated when designed well. Herzog and de Meuron referred to the process of reconstruction as a "surgical operation."[114] They used the site constraints to alter the existing fabric of the heritage building. Being the Power Station is in the heart of a dense city with narrow streets and buildings on all sides, with the space maxed out Herzog and de Meuron devised a way to create a large covered gathering space for the museumgoers while still ensuring the retention of the heritage building.

The interventions made to the CaixaForum have fundamentally changed the spatial relationship between the Power Station and its surrounding context, but it has been done so successfully. Herzog and de Meuron have retained enough of the existing fabric to allow visitors to fill in the blanks. For example, the floating appearance of the building is the result

114 Kiser, Herzog & de Meuron CaixaForum Madrid.

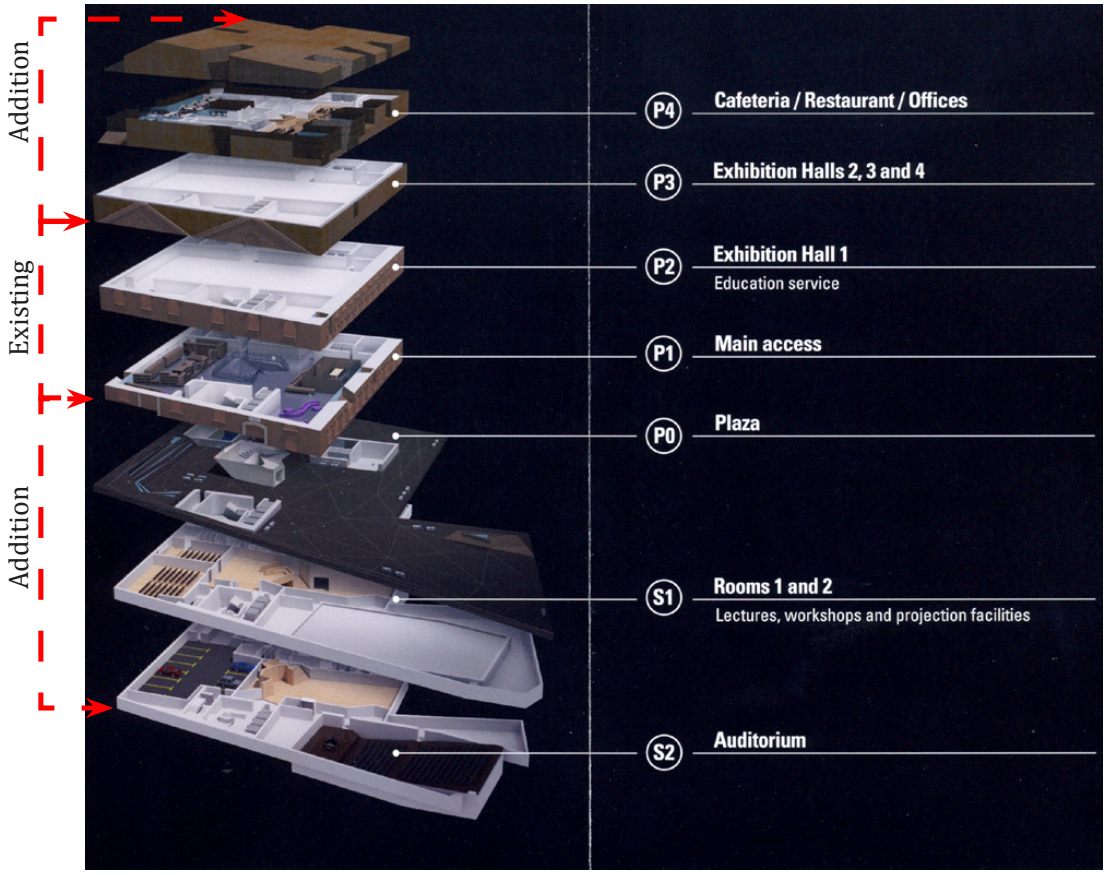


Figure: 85. Exploded axonometric rendering of the CaixaForum's functions. (Image Source: http://www.plataformaarquitectura.cl/wp-content/uploads/2008/02/85060206_caixaforum.jpg)

of removing the base stones. Many people can imagine that the stones were once there. They did the same thing with the roof, by removing the pitch of the roof and retaining the silhouette of the roofline. This means that the historical features seen are the hollowed out shells of what used to be there. Preservationists cannot call this extreme form of facadism a "lie," because there has been no effort to Trompe l'oeil = fool the eye by making it appear from the outside that the interior of the building remains untouched. Herzog and de Meuron make it clear to patrons that the historical Power Station is not the same, and no longer serves as a Power Station, but rather lives on as a museum and a commemoration to the city's industrial past.

Their untethered and innovative approach to resolving the design problems that arise when working with heritage buildings is what makes this case study so insightful. Herzog and de Meuron illustrate that architecture is about creating an experience just as much as it is about serving a function. The CaixaForum is a successful example that illustrate how drastic an intervention can be while still retain the elements of a heritage building that the public can relate with.

All in all, the CaixaForum is truly a cultural building that was designed for the people. When it demolished the neighboring gas station, it was not to replace it with a larger building, but rather to provide a new public square. In addition to creating a new public square, Herzog and de Meuron integrated a Vertical Garden. The CaixaForum was not designed to meet the bottom line; it was designed to improve the social condition of the area.

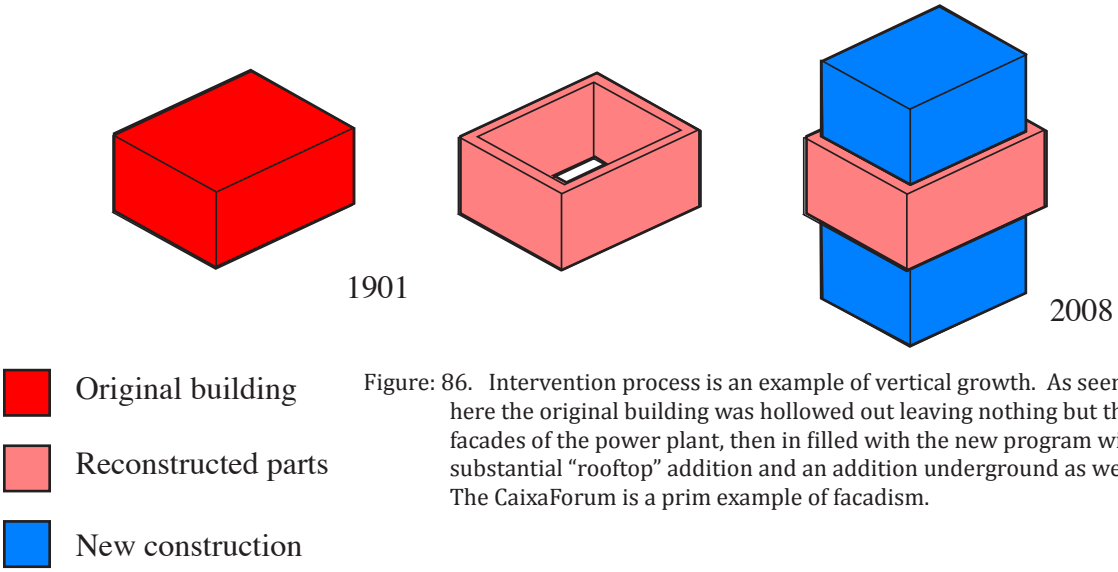


Figure: 86. Intervention process is an example of vertical growth. As seen here the original building was hollowed out leaving nothing but the facades of the power plant, then in filled with the new program with substantial "rooftop" addition and an addition underground as well. The CaixaForum is a prim example of facadism.

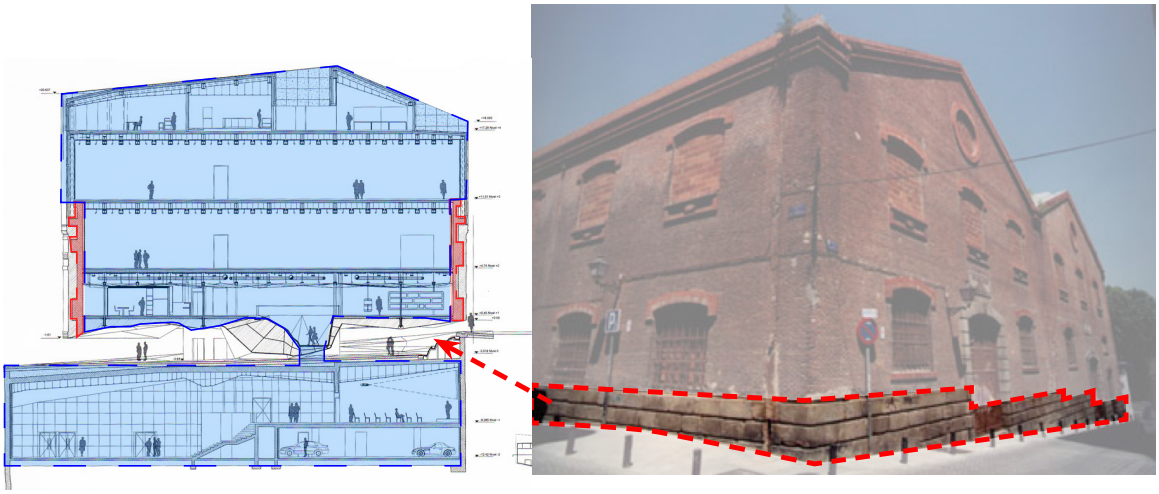
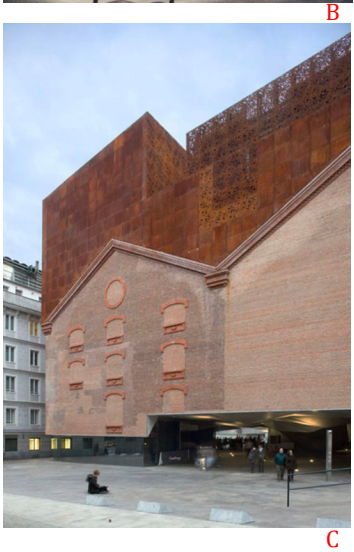


Figure: 87. This section illustrates that none of the interior elements survived the transition from Central Eléctrica del Mediodía to CaixaForum, because only the exterior brick walls were classified as significant and worth saving. (Image Source: http://en.wikiarquitectura.com/index.php/Caixa_Forum_Madrid)

Figure: 88. In this image the outline of the foundation stones that were original at the base of the Central Eléctrica del Mediodía, that were removed to make way for the new entrance to the CaixaForum. By removing the base Herzog and de Meuron were able to distinguish the CaixaForum from the surrounding buildings at a pedestrian level. (Image Source: http://static.Dezeen.com/uploads/2008/05/0140201-421.jpg)

A

B



C

Figure: 89. A) Bing aerial of the CaixaForum. (Image Source: http://www.bing.com/maps/)

Figure: 90. B) Original building CaixaForum. (Image Source: http://static.Dezeen.com/uploads/2008/05/0140201-421.jpg)

Figure: 91. C) Street view after construction CaixaForum. (Image Source: http://seaandsugar.blogspot.com/2010/09/oh-how-i-want-to-run-my-fingers-all.html)

Moritzburg Museum Extension

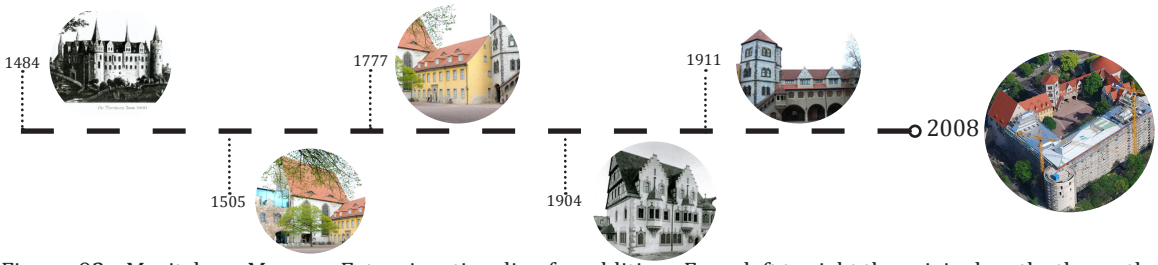


Figure: 92. Moritzburg Museum Extension time line for addition. From left to right the original castle, the castle chapel made 21 years later, the Baroque Hospital, Talamt Hall, the South Eastern battlements, and the Moritzburg extension.

The Moritzburg Museum is a great example of buildings that occupy ruins. The Moritzburg Museum's extension hovers over the existing ruins of what remains of a castle in a way that retains the story of its destruction. The new addition tells a story articulating what has happened to the building over its history. This case study in many ways is one of the best at emulating the hands off approach promoted by "anti-scrape," while still enabling the growth and reuse of a heritage building. Additionally the Moritzburg Museum has managed to obscure a large portion of the existing building while still promoting the display of the heritage buildings.

History of the Building's Evolutions

The Moritzburg Castle in Halle Germany was built in a Gothic Military style in the 15th century. In 1777, a military hospital was built on the eastern portion of the Moritzburg Castle, in the Baroque style. Nearly a century and a half later the southeastern bastion was constructed in 1913. The Thirty Year War of the 17th century left the north and west wings of the Moritzburg castle partially in ruin. The subterranean portions of this Castle were left intact.[115]

115 Stiftung Moritzburg, "Talamt as the New Museum of Decorative Arts," Stiftung Moritzburg, http://translate.googleusercontent.com/translate_c?hl=en&langpair=de%7Cen&rurl=translate.google.com&twu=1&u=http://stiftung-moritzburg.de/moritzburg/museumsgeschichte/&usg=ALkJrhhIxpJYq8-Ly7MwcjSRA018T0b_Kw (accessed July 20, 2011).

In 1904 the Landeskunst Museum Sachsen-Anhalt (National Art Gallery Saxony-Anhalt) moved into the Moritzburg Castle and has been occupied by them since.[116] In 1908, Max Sauerlandt, the first director of the Moritzburg Museum, made several attempts, to no avail, to utilize the North and West ruins of the castle for something other than a sculptural courtyard.[117]

The first extension to the original Moritzburg Castle was made in 1911-1913, the doomed hall. The lower part of the castle integrates the building built in the 15th to the 18th centuries, and it is the seat of the City of Halle and the Art Academy.[118]

Site and Surrounding Context

Located in the heart of the city of Halle, adjacent to the Saale River, the four corners of the castle are defined by four round towers that enclose a central courtyard. The castle is surrounded by foliage.

The castle's surroundings have remained the same at least to the degree that can be expected in a developing historical city. The castle is still surrounded by part of a moat, most of which has been lost. The extension designed by Nieto Sobejano Arquitectos is not what one would expect when visiting a 15th century castle; however, despite the contemporary appearance, Nieto Sobejano Arquitectos has managed to integrate the extension in a way that retains nearly all heritage elements. Visitors approach the Moritzburg Museum from the east through the original entrance where the heritage building dominates the view. As mentioned earlier, the Talmat building is located on the southern portion of the castle. To the east is the Lazarettbau (military hospital) infirmary building built in 1777. In 1912, the tower and eastern battlement, which looks like a walkway was developed. The southeastern bastion was expanded for the museum in 1913. The western part of the castle contains the enclosed ruins. The rest of the partial ruins and the Mary Magdalene Chapel built in 1505 occupy the northern portions of the castle.[119]

116 Stadtmarketing Halle, hallehospitable City Guide Halle, http://www.stadtmarketing-halle.de/Down-Loads/254/city%20guide%20Halle.pdf (accessed May 17, 2011).
117 Stiftung Moritzburg, "Talamt as the New Museum of Decorative Arts."
118 Stadtmarketing Halle, hallehospitable City Guide Halle.
119 Stiftung Moritzburg, "Talamt as the New Museum of Decorative Arts."

Growth and Preservation Strategies

The Talmat building, located on the southern portion of the castle, where the original stables believed to have been built in between 1582-1680, was completely reconstructed in 1882 and restored again at the end of the 20th century.[120]

Although the north and east wings were never restored to their original splendor, the complex has had many minor and major restoration efforts. In 1898, the castle's network of vaults was reconstructed. In 1904, efforts were taken to restore the north and east wings of the Castle to a useable state. Also in 1904, the basement was renovated. In 1907, the Moritzburg Museum was designated a Halle Landmark. In 1945, it became one of the largest basement museums in Germany. By the following year the Thirty Year War ruins were being used as an open-air sculpture garden. By the end of the 20th century, the Moritzburg Castle had been extensively restored.[121]

In 2003, the difficult discussion about whether or not to enclose the ruins of the north and west wings was brought up again. In 2004, Nieto Sobejano won the design competition for the newest intervention to the Moritzburg castle. They developed the design from 2005-2008 to enclose the ruins. Stifting Morizburg, the State of Sachsen Anhalt, and Gerlinger donation funded the extension for the art gallery.[122]

The Moritzburg Museum is nearly a rooftop addition, though it does not protrude much beyond the existing ruin walls. What makes the Moritzburg history of growth especially interesting is the way in which the addition appears to be suspended over the castle. The Moritzburg is able to integrate the new addition in this unusual way that compels visitors to see and celebrate differences between the old and the new. The coarse texture and the warm colors of the existing stonewalls are juxtaposed against smooth white interior walls. The juxtaposition of the exterior's stonewall and steel cladded roof is just as exuberant. The natural absorptive quality of the exterior stone and the warm orange

120 Stiftung Moritzburg, "Talamt as the New Museum of Decorative Arts."

121 Dezeen: Design Magazine, Moritzburg Museum Extension by Nieto Sobejano Arquitectos, June 17, 2011, http://www.Dezeen.com/2011/06/17/moritzburg-museum-extension-by-niento-sobejano-arquitectos/ (accessed July 28, 2011).

122 Kunstmuseum of Saxony Anhalt, *Prehistory*, http://translate.google.com/translate?hl=en&langpair=de%7Cen&rurl=translate.google.com&twu=1&u=http://stiftung-moritzburg.de/moritzburg/museums-geschichte/ (accessed April 8, 2011).

color of the roof are in contrast to the reflective glow of the metal cladding of the new roof, entrance, and tower. There is no effort to recreate or echo the original forms found within the existing building, nor is there an apology, nor is one needed.[123]

While nearly every conventional approach to adding to a historic building has been rejected, this addition is successful. Nieto Sobejano Arquitectos do everything in their power to ensure that visitors can distinguish old from new. They are able to accomplish their objectives while respecting the existing building. Even when the addition completely obstructs the existing building as in the case of the entrance on the northern courtyard wall, it respects it by allowing visitors to gain a new perspective of the heritage building. The architects are also able to accomplish the appreciation of the heritage building by offsetting the new away from the existing. For instance, the southern exterior observation tower wall, which is, offset from the ruin walls of the castle. This new observation tower is an enlarged and stretched version of the entrance. In this case, the existing openings were used as access points for circulation.[124]

Observations

The Moritzburg Museum's four hectares site originally only had 2,000 square meters of gross useable space, where as the extensions have increased the total gross floor area 5,500m2.[125] This substantial growth highlights the value of these developments. The Moritzburg Museum shows how buildings can undergo drastic changes to their benefit over the centuries.

In *Architecture Now! Museums,* by Philip Jodidio, there were images showing how the old stone of the ruins were left unfinished and often constructed around juxtaposing the course stone against the plastered smooth white walls.[126] This approach taken by Nieto Sobejano was a sensitive approach that is in keeping with the principle of anti-scrape. Another thing that Nieto Sobejano was able to accomplish in the Morizburg Museum is the successful obscuring of existing feature, while providing the visitors with a new perspective of the obscured features.

123 Kunstmuseum of Saxony Anhalt, *Prehistory*.
124 C3, "Moritzburg Museum Extension/ Nieto Sobejano Arquitectos, S.L.," C3 09/01 (JaeHong Lee), 01 09: 48-59.
125 Stiftung Moritzburg, "castle, ruins and museum," Stiftung Moritzburg, http://translate.google.com/translate?hl=en&langpair=de%7Cen&u=http://www.stiftung-moritzburg.de/ (accessed July 20, 2011).
126 Philip Jodidio, Architecture Now!, 268

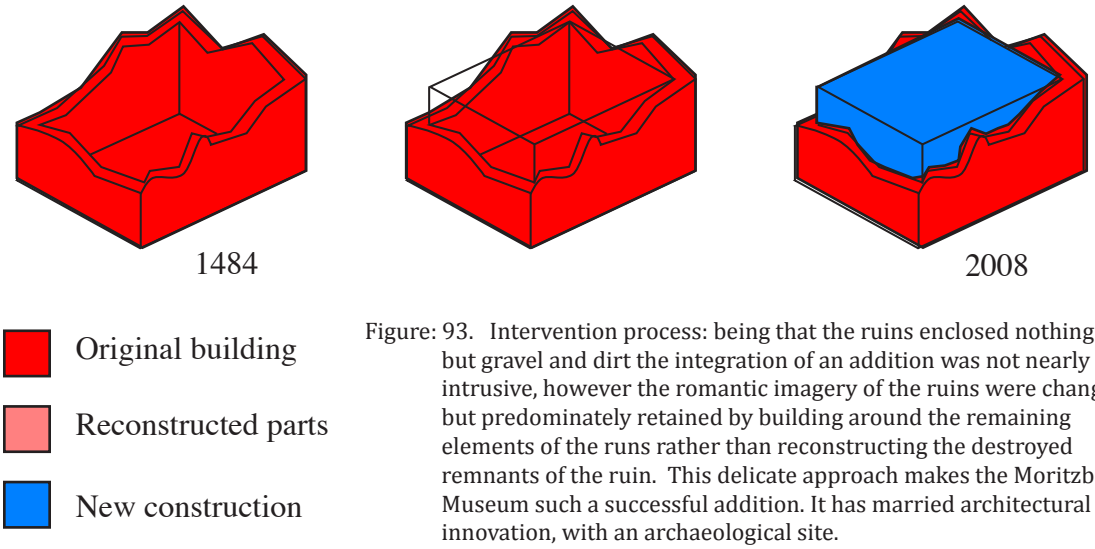


Figure: 93. Intervention process: being that the ruins enclosed nothing but gravel and dirt the integration of an addition was not nearly as intrusive, however the romantic imagery of the ruins were changed, but predominately retained by building around the remaining elements of the runs rather than reconstructing the destroyed remnants of the ruin. This delicate approach makes the Moritzburg Museum such a successful addition. It has married architectural innovation, with an archaeological site.

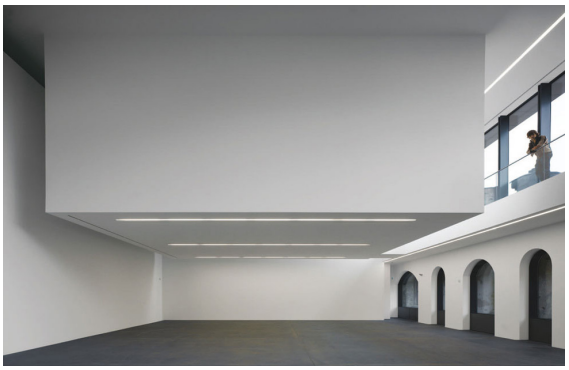
C D E

Figure: 94. Integration of the extension to the existing building. (Image Source: C3, "Moritzburg Museum Extension/ Nieto Sobejano Arquitectos, S.L.," C3 09/01 (JaeHong Lee), 01 09: 48-59.)

Figure: 95. Integration of the extension to the existing building. (Image Source: C3, "Moritzburg Museum Extension/ Nieto Sobejano Arquitectos, S.L.," C3 09/01 (JaeHong Lee), 01 09: 48-59.)

Figure: 96. View from the outlook of the that obstructs the exterior wall of the castle. (Image Source: C3, "Moritzburg Museum Extension/ Nieto Sobejano Arquitectos, S.L.," C3 09/01 (JaeHong Lee), 01 09: 48-59.)

A



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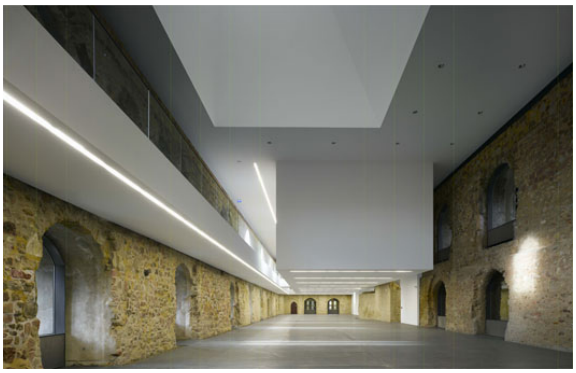


C

Figure: 97. A) Interior images that illustrates the different approaches to the treatment of the wall; the exposed versus the plastered. Likely done to suit the needs of the spaces. While not identified image "A." (Image Source: http://openbuildings.com/buildings/moritzburg-museum-extension-profile-39377/media/223628/show)

Figure: 98. C) are stacked on top of each other. (Image Source: http://www.ondiseno.com/proyecto_en.php?id=1510)

Figure: 99. B) is on the top floor where glass was used to in fill the missing wall. (Image Source: http://www.chi-athenaeum.org/intarch/2009/moritzburgmuseum40/index.html)

Figure: 100. Image of the northern wall before the addition was made, back of the castle circa 1890 and 1905. The area outlined in red indicates where the new outlook that partially obscures the castle is located. (Image Source: http://de.wikipedia.org/w/index.php?title=Datei:Moritzburg_1900.jpg&filetimestamp=20081024144826)

Figure: 101. Looking from the same corner after the addition was built. While this corner is obscured by the addition it also allows users to gain a different perspective of that wall than they had in the past. (Image Source: http://mimoa.eu/projects/Germany/Halle/Moritzburg%20Museum%20Extension)

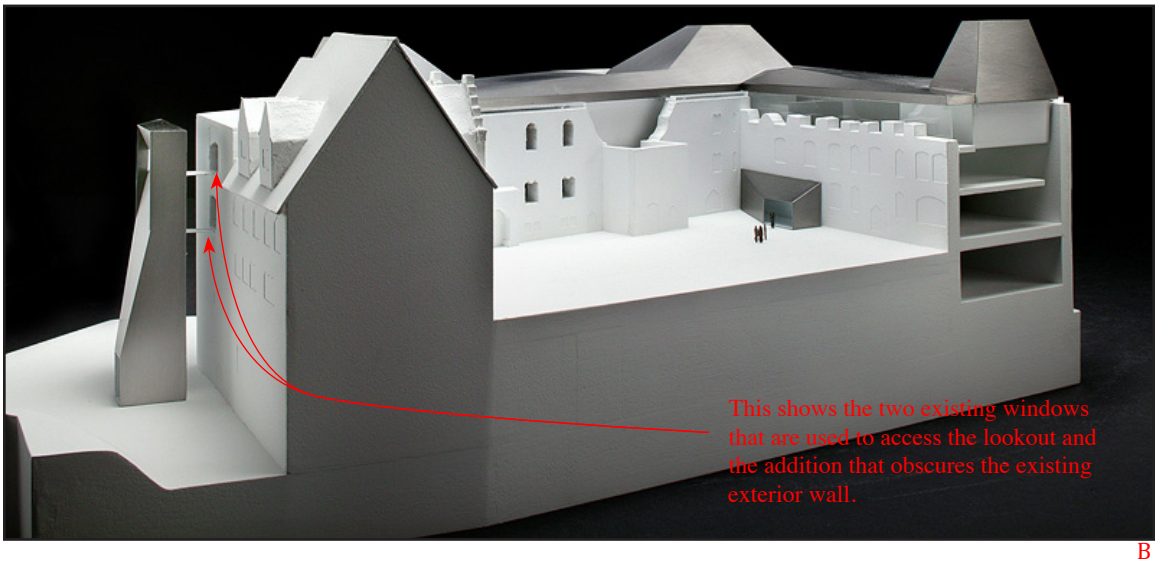
A

Figure: 102. Open-air sculpture in the west wind of Moritzburg in 1957. (Image Source: http://stiftung-moritzburg.de/uploads/pics/MODO_00015.jpg)

Figure: 103. Section of the newest extension. (Image Source: http://www.moritzburg-halle.de/entwurf-der-neue-ausstellungsfluegel.php)

Figure: 104. Courtyard of the Moritzburg Castle before the intervention. (Image Source: http://www.plasmastudio.com/moritzburg/moritzburg1.htm)

Figure: 105. Courtyard of the Moritzburg Castle after the intervention. (Image Source: http://www.Dezeen.com/2011/06/17/moritzburg-museum-extension-by-niento-sobejano-arquitectos/)



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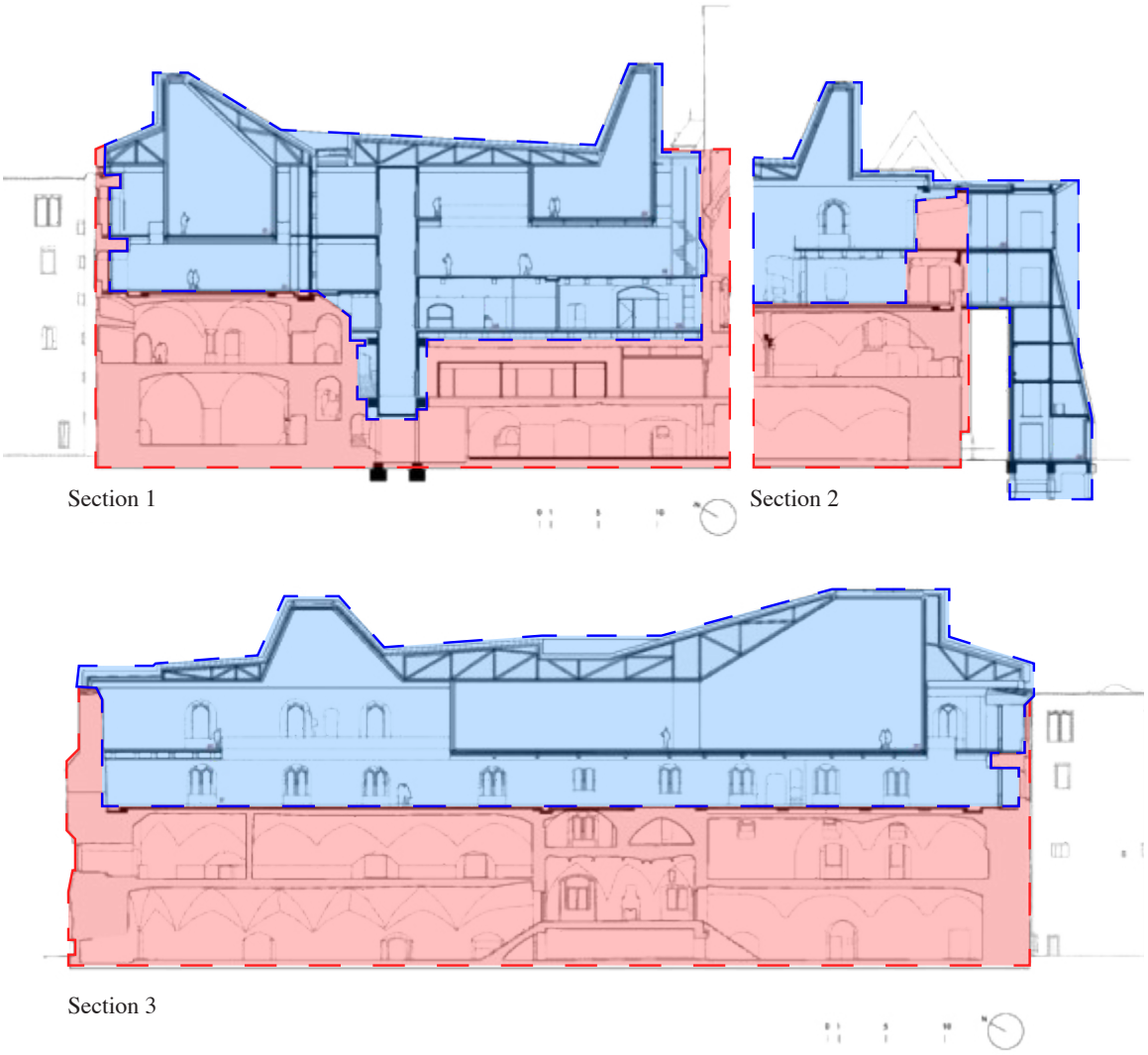


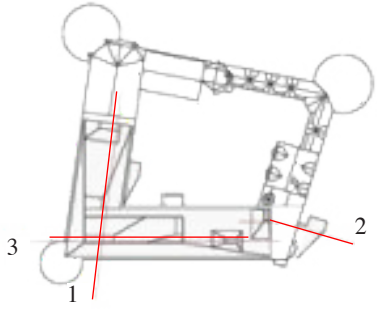


Figure: 106. Section 1 the blue identifies the extension and the red the existing ruins of the castle. (Image Source: http://www.Dezeen.com/2011/06/17/moritzburg-museum-extension-by-niento-sobejano-arquitectos/)

Figure: 107. Section 2 shows a section cutting through the lookout. The blue identifies the extension and the red the existing ruins of the castle. (Image Source: http://www.Dezeen.com/2011/06/17/moritzburg-museum-extension-by-niento-sobejano-arquitectos/)

Figure: 108. Section 3 the blue identifies the extension and the red the existing ruins of the castle. (Image Source: http://www.Dezeen.com/2011/06/17/moritzburg-museum-extension-by-niento-sobejano-arquitectos/)

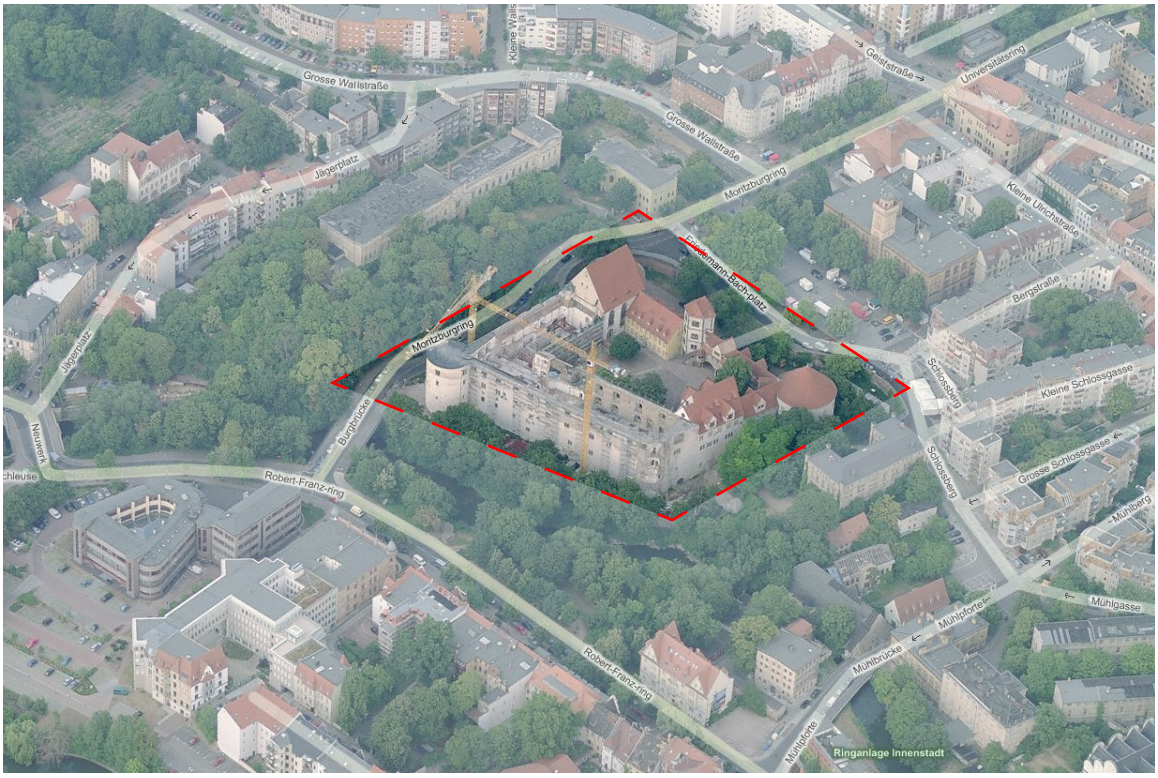


Figure: 109. Aerial. (Image Source: http://www.bing.com/maps/)
Figure: 110. The eclectic parts of the Moritzburg Castle. (Image Source: http://translate.googleusercontent.com/translate_c?hl=en&langpair=de%7Cen&rurl=translate.google.com&twu=1&u=http://stiftung-moritzburg.de/index.php%3Fid%3D2&usg=ALkJrhhbf7gmFF9z95wK9mE6eU3PtiZxTQ)
Figure: 111. The courtyard of the ruins before the addition. (Image Source: http://translate.googleusercontent.com/translate_c?hl=en&langpair=de%7Cen&rurl=translate.google.com&twu=1&u=http://stiftung-moritzburg.de/moritzburg/museumsgeschichte/&usg=ALkJrhhIxpJYq8-Ly7MwcjSRA018T0b_Kw)
Figure: 112. The Moritzburg Museum after the extension. (Image Source: http://www.mimoa.eu/images/24355_l.jpg)

The AGO

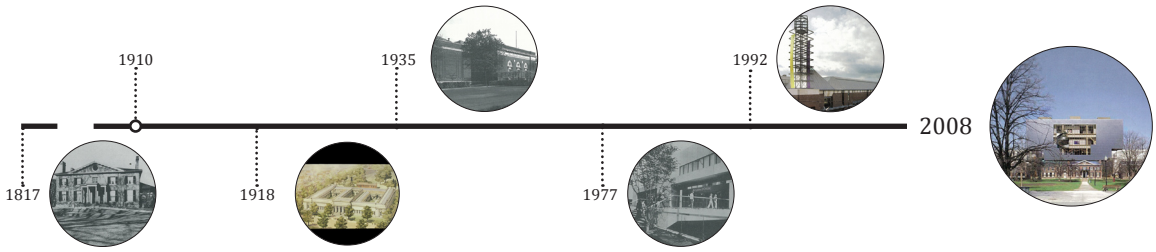


Figure: 113. AGO time line illustrated the way that the AGO has grown over the past century. (Image Sources: Frank Gehry, Toronto (Toronto: Library and Archives Canada Cataloguing, 2006).)

The Art Gallery of Ontario (AGO), illustrates the struggle, evident throughout history, between the way that additions are perceived and integrated. The AGO demonstrates the value associated with the architecture of the 19th century, and the undervaluing of the architecture of the 20th. That is until the final addition designed by Frank Gehry. The AGO designed by Gehry is an example of how an addition can be used to reorganize disparate parts, and when designed well, they highlight heritage elements that have been forgotten.

History of the Building's Evolutions

Since the opening of the AGO, there have been 6 major museum expansions. Before the AGO, there was the Grange, the original Georgian mansion built in 1817, by Giles Gilbert to be the home of Goldwin Smith. In 1910, the seven-acre estate was willed to the AGO, then known as the Art Museum of Toronto. The Art Museum of Toronto was founded at the beginning of the 20th century by a group of private citizens. In 1911, the AGO moved into its current location.[127]

When looking at the Grange prior to all of its extensions and comparing it to all of the future additions, the relationship of the building to the street is surprising. The floor plans show how far away the original Grange was from the current street. The Museum is located in the Grange Park district, on 317 Dundas Street West.

127 *History of the Grange*, 2012, http://www.ago.net/history-of-the-grange (accessed November 7, 2012).

The Pearson and Darling schemes and addition: In 1910, the Art Gallery of Toronto started acquiring surrounding properties, and by 1914, the acquisition of all surrounding properties was completed. All surrounding property had to be acquired because of a stipulation that open space behind the building must remain a Public Park. In 1919, the Museum was renamed the Art Gallery of Toronto.[128]

In 1918, Pearson and Darling proposed the first extension to the AGO, but only a small part of their proposal was realized because of the Great Depression. Their surviving proposal was constructed in 3 phases with the main feature, Walker Court, constructed in 1926 as part of the second phase. This series of additions, completed in 1935, was constructed in Beaux-Arts style. As the first extension to the Grange, its placement was critical, for it would impact the decision-making process for all extensions to follow. Placed separate from the Grange, the addition inadvertently initiated a radiating form of growth that would attempt to link the Grange to the first extension.[129]

Parkin addition: In 1966, the gallery was dubbed the Art Gallery of Ontario (AGO). The Parkin addition, designed as a Modern pre-cast concrete structure, was constructed completely around the Pearson and Darling addition. This Parkin addition was also to be constructed in three phases; however, due to budget cuts, only two of the phases were completed. The second phase was completed in 1977.[130]

In 1992, Barton Myers and Kuwabara, Payne, McKenna, Blumberg Architects (KPMB) designed a Post-Modernist addition.[131] This extension was identified by its three-story entry.

The final expansion, designed by Frank Gehry, unfortunately, required the demolition of most of the 1992 extension, designed by Barton Myers. Gehry's intervention has unified disparate parts of the AGO by restoring the historical axis and by overhauling most of the interior layout.[132]

128 Frank Gehry, Toronto (Toronto: Library and Archives Canada Cataloguing, 2006). 23
129 Ibid. 24
130 Ibid. 26
131 Frank Gehry, The Art Gallery of Ontario, 2010, http://www.designboom.com/contemporary/art_gallery_of_ontario.html (accessed October 5, 2010).
132 Gehry, Toronto, 34

Upon approaching the AGO from Dundas Street, one sees the most prominent and visible feature of the AGO, the Gallery Italia. The Galleria Italia is a captivating 590-foot long sculpture gallery identified by its glass façade that spans the entire length of the museum's second floor. Its sculptural form, composed of ribbed Douglas fir glulam beams resembling the wake of a wave, defines the façade.[133]

Below the glass wall, is the gallery's main entrance, which has been re-aligned with the historic central axis of the building. This axis is aligned with Walker Court, the main remaining historical feature aside from the Grange. This alignment highlights the importance of the historical building, and revives historical elements. To increase the centrality of Walker Court, all major vertical circulation converges at the court.[134]

No more room to expand outwards required the newest addition to the AGO to develop vertically. At the gallery's south end, Gehry added a four-story addition overlooking both the Grange and Grange Park. Three levels of the new extension are covered with a blue-tinted titanium cladding and a glass curtain wall, divided by a series of horizontal wooden louvers. Four and a half foot spiral staircases cantilever off the north and the south faces of the new extension. The northern staircase pierces a glass ceiling before terminating on the

133 Gehry, Toronto, 38-41
134 Ibid. 38-41

Figure: 114. Gallery Italian exterior. (Image Source: http://rrrinaaa.blogspot.com/)
Figure: 115. Interior of the Gallery Italian. (Image Source: http://www.bcwood.com/programs-services/)

south side of Walker Court. Each of the staircases is enclosed with windows on all sides, and is finished with Douglas fir.[135] This application of warm wooden finishes, employed to humanize the space, can be found throughout the newest extension.

Site and Surrounding Context

The relationship between the Grange and the street, has changed the most with each successive addition. The layout of the AGO is like the two sides of a coin. Upon approach, the AGO does not register as a historical building; the entire front façade no longer resembles the architecture of the early twentieth century. This could be easily dismissed as a poor example of preservation technique, but once the entire site is put into context, the AGO is successful in many ways. The new extension designed by Frank Gehry faces Dundas road with its rushing cars, and ever-urbanizing cityscape containing few remnants of the past. The Grange sits facing the quaint public park, with the deep blue steel clad facade as a backdrop.

The AGO is only understood as a preservation project if one walks to the back of the museum or inside. It reads like a coin because one only knows that the other side of the coin is different when one has flipped it. The issue that makes the AGO difficult to register as a heritage project, is the very redeeming attribute that it is indeed a building of the 21st century, and, yet, it is still a heritage building.

Growth and Preservation Strategies

Though the Art Gallery of Ontario has failed in preserving virtually all of the distinguishing features of the Pearson Darling, Parkin, and Barton Myer additions, it has managed to create an interesting relationship between the original Grange and the final addition designed by Frank Gehry.

Many of the faults found in the AGO are no fault of Frank Gehry, as many of the issues involved in the preservation of existing buildings reflect how additions were perceived in the past.

The AGO's form of growth resembles the concept of a Russian nesting doll. Successive wrapping of previous extensions leaves no discernible evidence on the exterior that indicates the existence of a heritage building. That is with the exception of the Grange,

135 Gehry, The Art Gallery of Ontario.

which has existed on the periphery of the AGO' since the first extension. Since the Grange has remained detached from the AGO, it has retained the most integrity. Aside from the Grange and the Transformation AGO, only remnants of The 1933 Walker Court remain intact.

With so much of previous additions masked or lost, the AGO does not present itself as an ideal example on how to add to an existing building. The scale and proportion each successive addition is no longer related to the existing building. This is not saying that the addition is too massive, but rather that each successive addition was not appropriately conceived in relation to the original building.

Despite its shortcomings the AGO does have some redeeming qualities.

The dichotomy of the front to the back is most impressive. This contrast of old to new, and city to park, is the result of an easement placed on the back of the property, which has created a perfect urban setting. What really makes this building successful is the fact that the surrounding environment embodies the same dichotomy as the AGO, being that the street is busy and lined with Beaux Art and Second Empire houses that have all been converted to restaurants and cafes. The setting is a testimony to urban development.

Although there are many redeeming attributes to be found within the gallery, holistically, there is something left to be desired as far as preservation is concerned. For the public, it is a pleasant surprise to enter the building and find a historical courtyard without expecting a historic building; the Grange, as well, is an unexpected finale.

When ascending either of the spiral staircases, one can see the conglomerated disparate roofs, patched together over decades. This illustrates growth based on necessity, rather than design. Curiously, this view of rooftops illustrates the growth of the AGO better than its facade along which several different rooflines represent each previous expansion.

The proximity of the 1933 extension to the Grange was a timid approach. In the case of the Grange, it would have been more appropriate to completely interact or not interact with it at all. It would have been interesting to see the Grange either completely integrated into the museum, or only connected by a sub level.

Observations

What have been the benefits of these major expansions? Aside from gaining the needed gallery space, the AGO has gained the notoriety of being an iconic building and an attraction. Over 878,478 visitors have visited the gallery since its reopening. Although these numbers do not compare to those documented at other such iconic buildings, like Bilbao's, the AGO can still be seen as a success. In 2009/10, total attendance at the gallery was a record-breaking 78,500 visitors. Transformation of the AGO increased gallery space by 47%. The new extension was designed by Frank Gehry, but provided by Thomson he was able to collaborate on the design of the new extensions, which resulted in a seafaring theme.[136] The Art Gallery of Ontario, one of North America's largest museums, receives more than 650,000 visitors annually.

Total cost of the expansion, funded by both public and private contributions, was $276 million. Twenty Six Italian families, whom the Gallery Italia was named for, donated $13 million CAD. Ken Thomson, whose contributions brought the AGO's transformation into fruition, made a substantial donation of $100 million CAD and a 2,000 pieces collection to the AGO, in 2002. While the method of evolution of the AGO has been in direct contrast to that of the ROM, there are many features (Frank Gehry even restored the location of the original entrance) found in the AGO that contribute to its success. The AGO exhibits its own learning curve when it comes to the growth and evolution of additions. While it may have failed in the past, successive additions the AGO have thrived. The most recent addition in its relationship to the Grange of cobalt blue against the Grange's burnt umber rivals an immersionist painting.

All in all, the AGO is a great example of how historical elements, while obscured from the street, can still be revealed within the interior of the addition. Frank Gehry has successfully developed an experience of surprise and discovery, which should be expected of the union of two buildings representing different periods of history.

136 William Withrow, Art Gallery of Ontario, 2010, http://www.thecanadianencyclopedia.com/index.cfm?PgNm=TCE&Params=A1ARTA0000330 (accessed October 6, 2010).

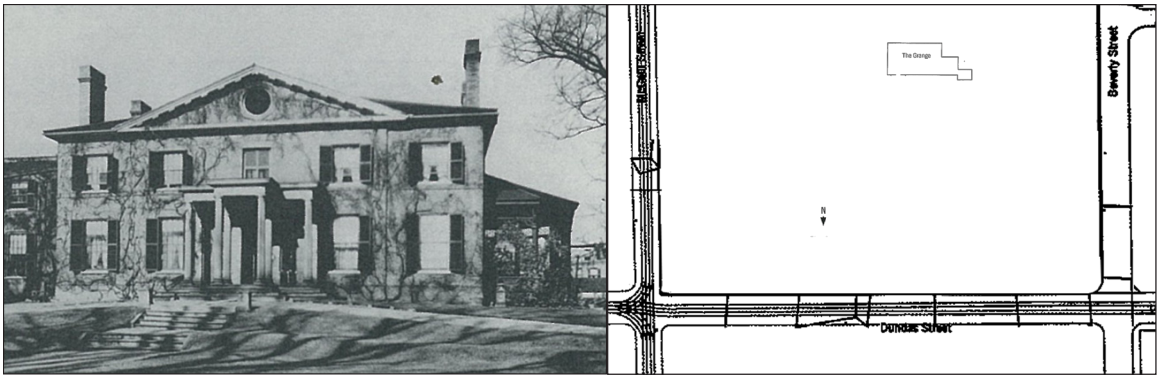


Figure: 116. The floor plans and street layout were combined to show the relationship of the Grange and Dundas street. The Grange through 1935. (Image Source: Frank Gehry Toronto)

Figure: 117. The Grange in 1909, designed by Giles Gilbet Scott completed in 1817. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

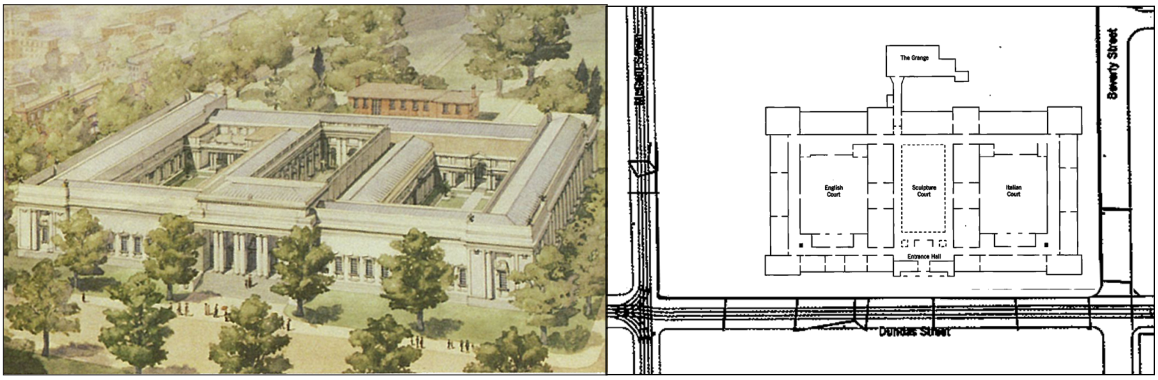


Figure: 118. While never built, because of economic issues. The floor plan and street layout were combined to show the relationship of the Art Gallery of Ontario and the roads have been imposed over the floor plan. However this design was never realized. (Image Source: Frank Gehry Toronto)

Figure: 119. "The original Darlying and Pearson scheme for the Art Museum of Toronto, 1918." (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

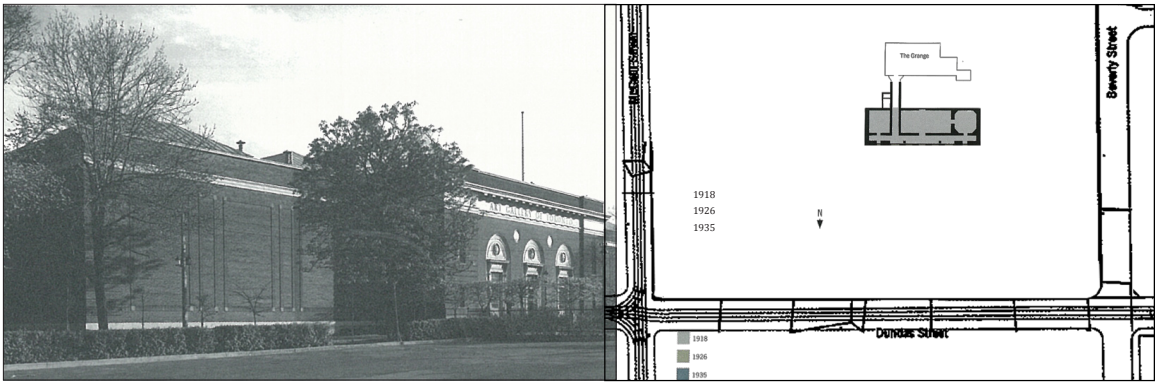


Figure: 120. The floor plan and street layout were combined to show the relationship of the Art Gallery of Ontario and the road. While the original scheme designed was never built a smaller modest building was built from 1918-1935. (Image Source: Frank Gehry Toronto)

Figure: 121. Art Museum of Toronto, designed by Pearson and Darling completed in 1935. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

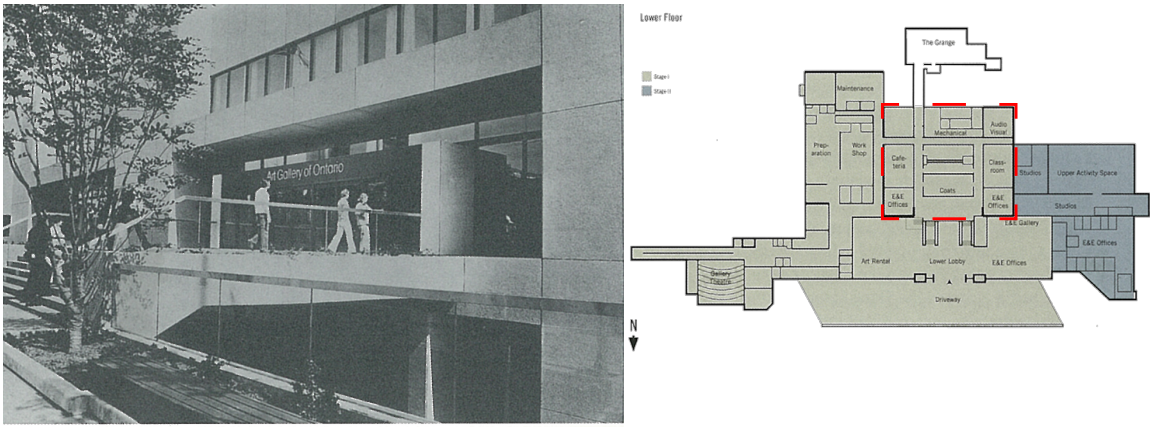


Figure: 122. Art Museum of Toronto, designed by Parkin 1977. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

Figure: 123. The plans illustrate the relationship between the grange and Dundas street. 1977 through 1992. The first addition is outlined in red, identifying the wrapping growth that the AGO started with. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

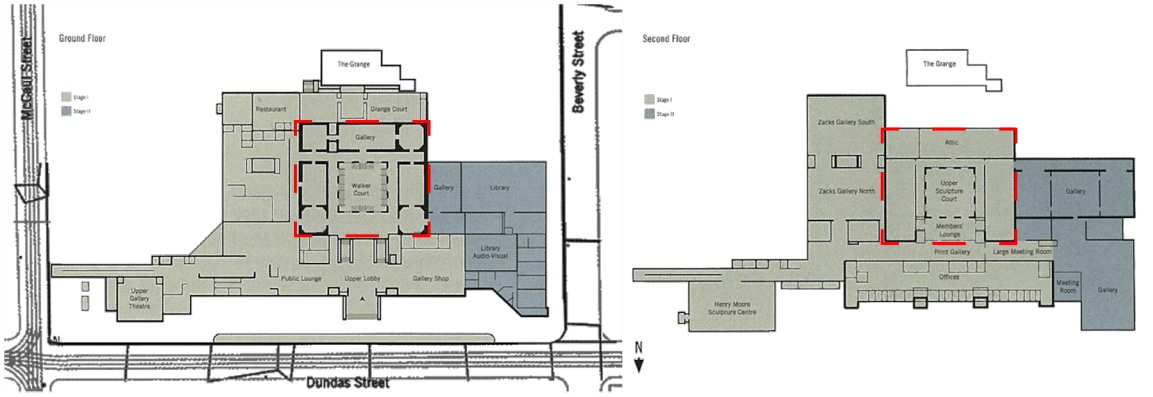
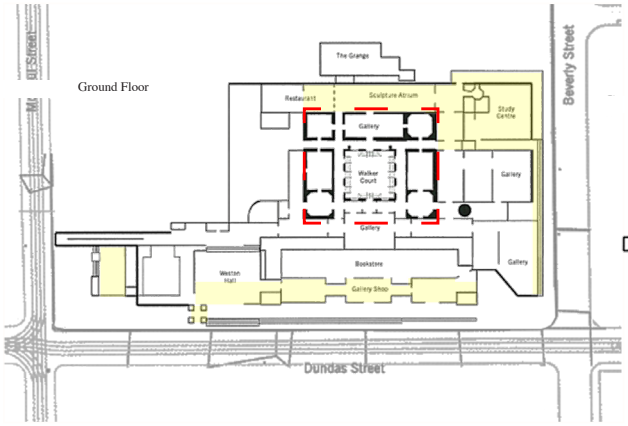


Figure: 124. The plans illustrate the relationship between the grange and Dundas street. 1977 through 1992. This wrapping growth is not a suggested approach for growth for heritage buildings unless the enclosed walls remain untouched and exposed for visitor to experience. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

Figure: 125. The plans illustrates the relationship between the grange and Dundas street. 1977 through 1992 (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

Figure: 126. Art Museum of Toronto, designed by Barton Mayers and KPMB 1992. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

Figure: 127. The plans illustrates the relationship between the grange and Dundas street. 1977 through 1992. The 1st extension outlined in red and the yellow identifies the Addition made in 1992, which was once again no more sensitive to the exist building than Parkins in the 60s. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)



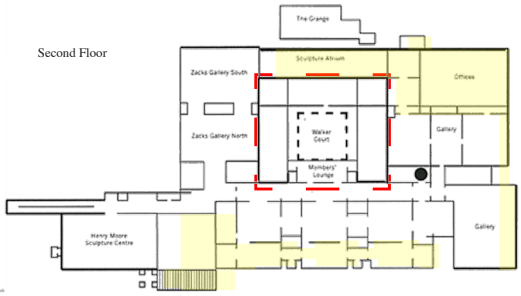


Figure: 128. The plans illustrates the relationship between the grange and Dundas street. 1977 through 1992. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

Figure: 129. The plans illustrates the relationship between the grange and Dundas street. 1977 through 1992. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

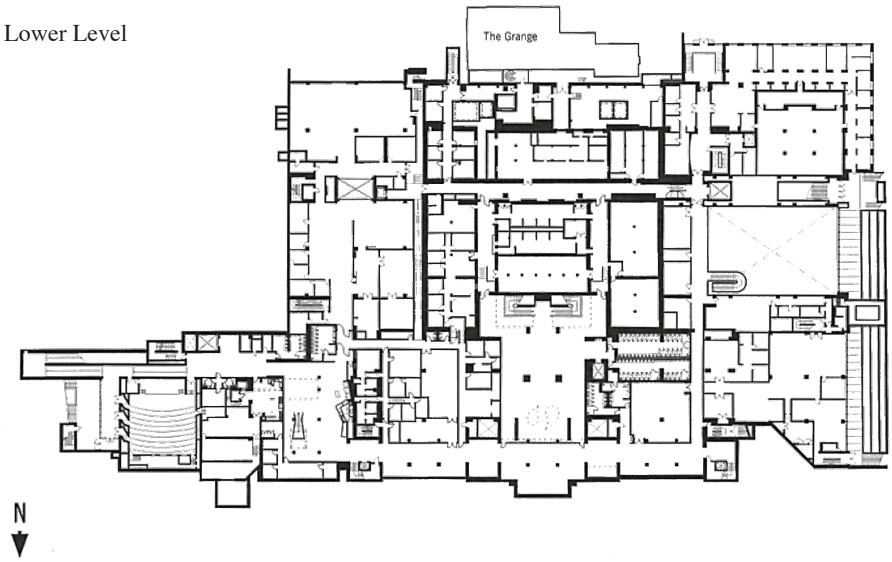


Figure: 130. The plans illustrates the relationship between the grange and Dundas street. Today. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

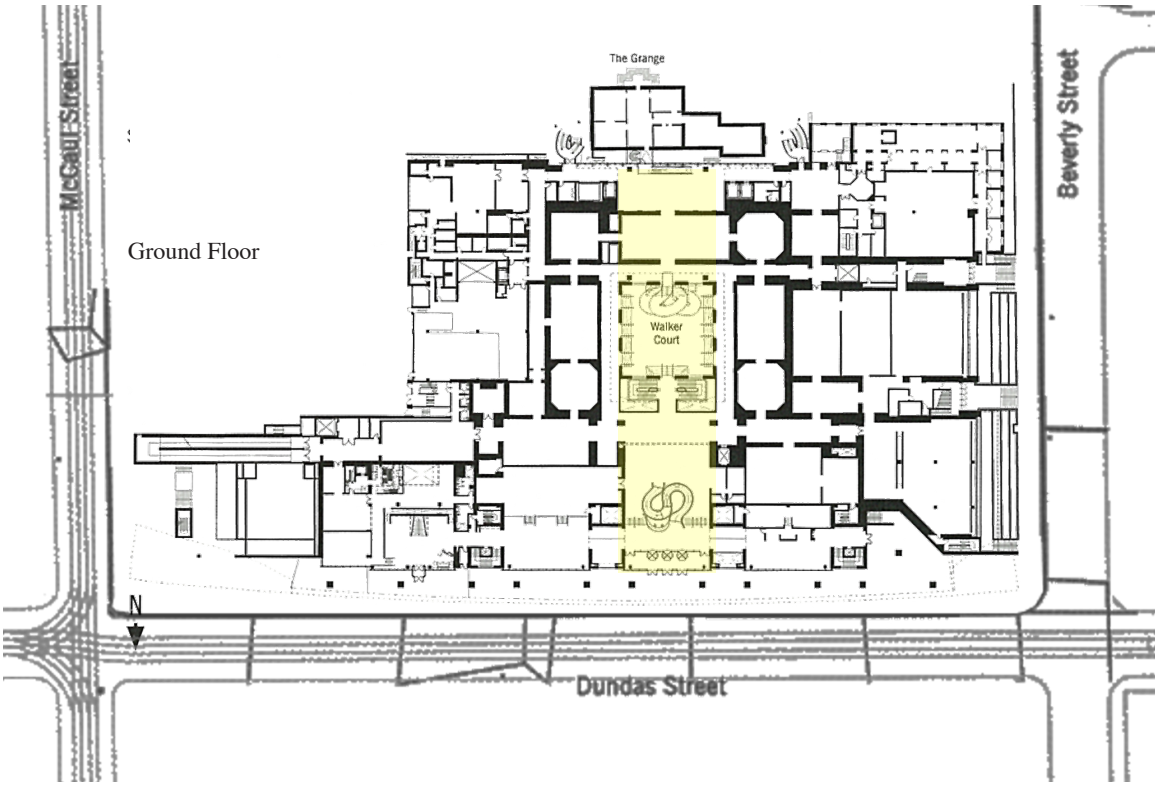


Figure: 131. The plans illustrates the relationship between the grange and Dundas street. Today. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

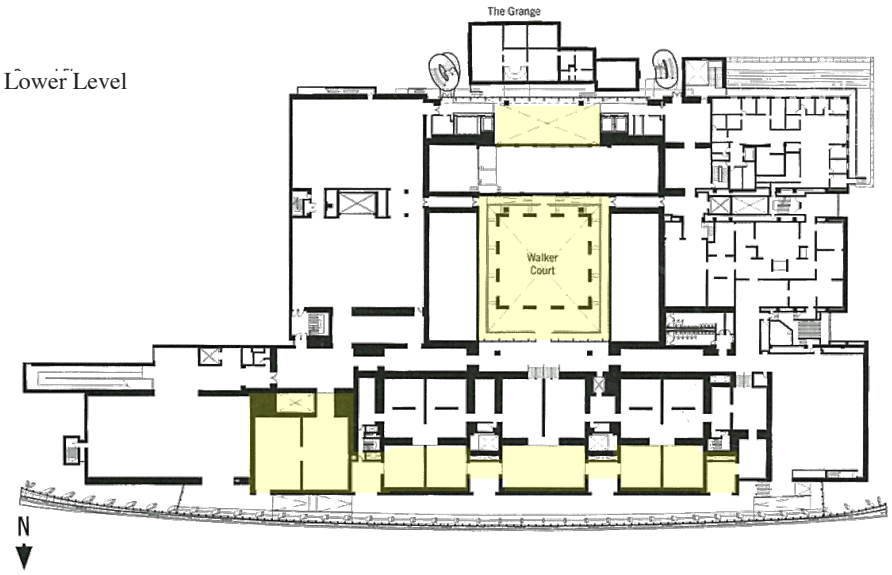


Figure: 132. The plans illustrates the relationship between the grange and Dundas street. Today. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

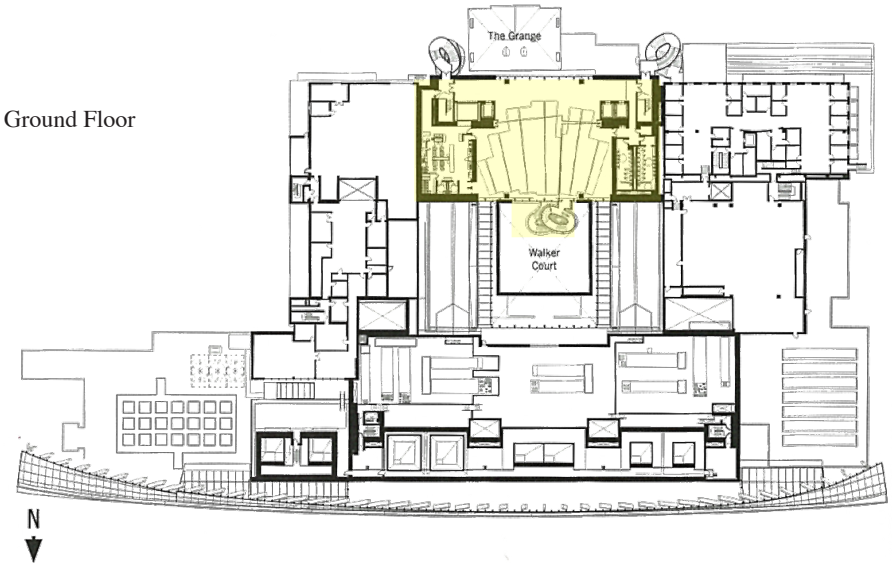


Figure: 133. The plans illustrates the relationship between the grange and Dundas street. Today. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

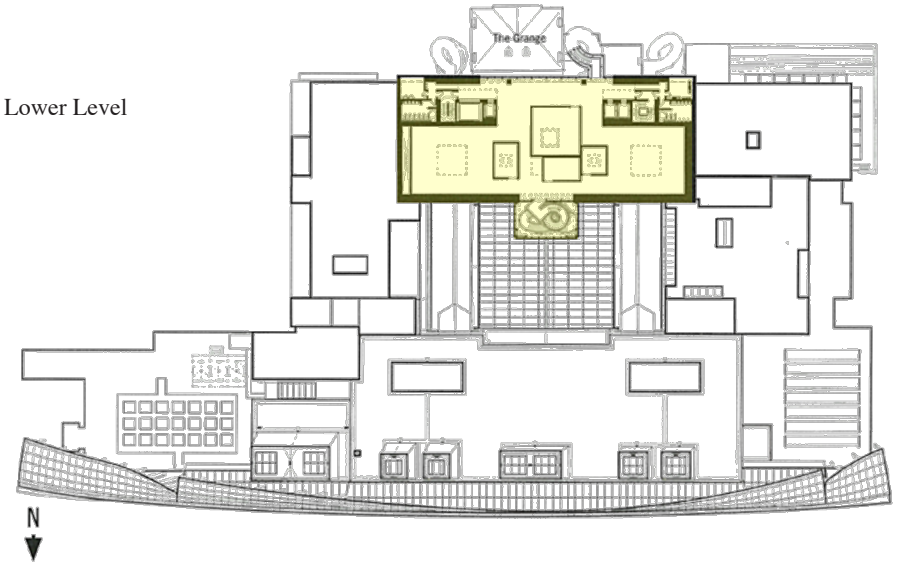


Figure: 134. The plans illustrates the relationship between the grange and Dundas street. Today. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

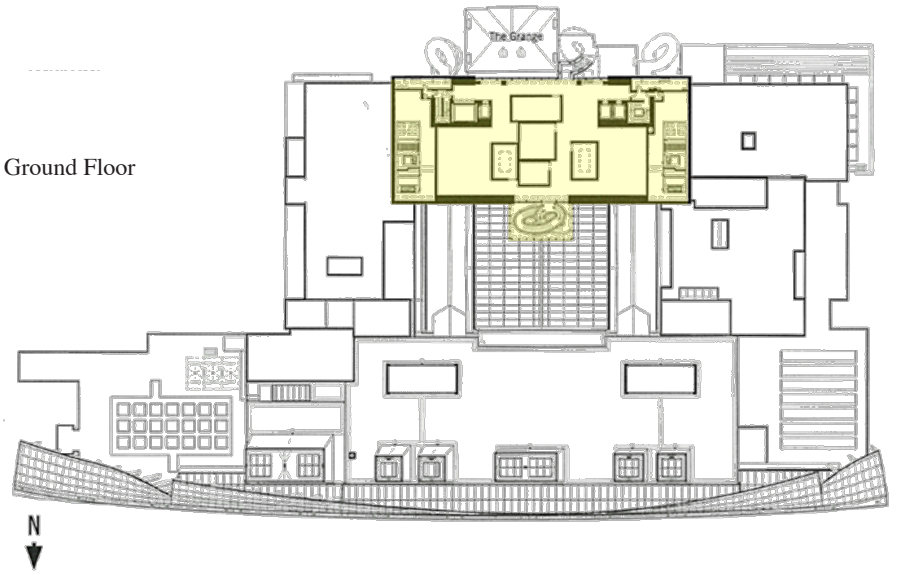


Figure: 135. The plans illustrates the relationship between the grange and Dundas street. Today. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

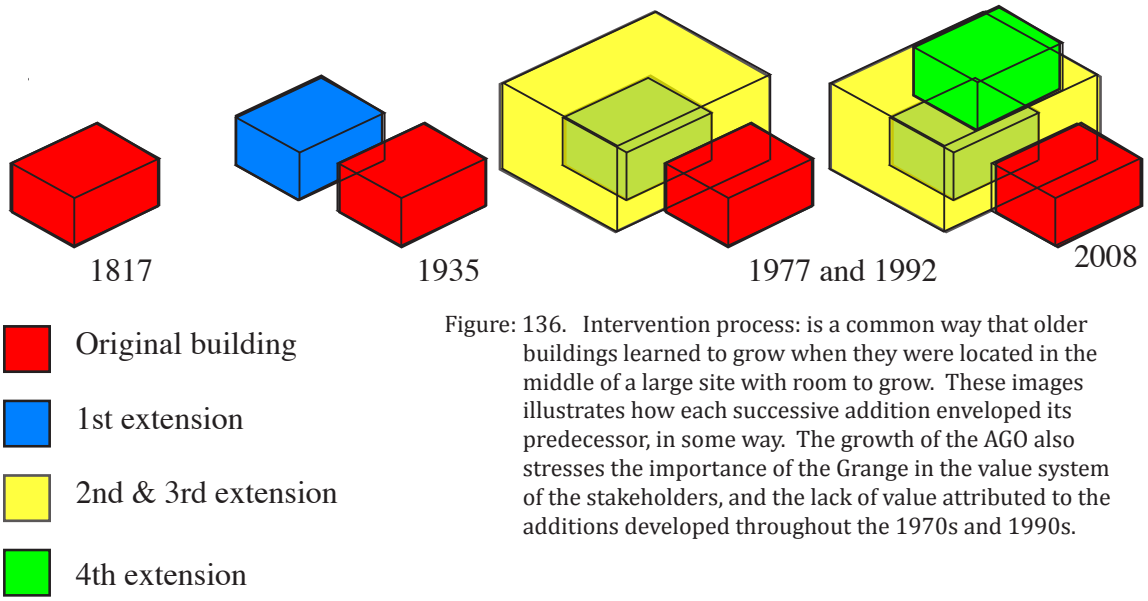


Figure: 136. Intervention process: is a common way that older buildings learned to grow when they were located in the middle of a large site with room to grow. These images illustrates how each successive addition enveloped its predecessor, in some way. The growth of the AGO also stresses the importance of the Grange in the value system of the stakeholders, and the lack of value attributed to the additions developed throughout the 1970s and 1990s.

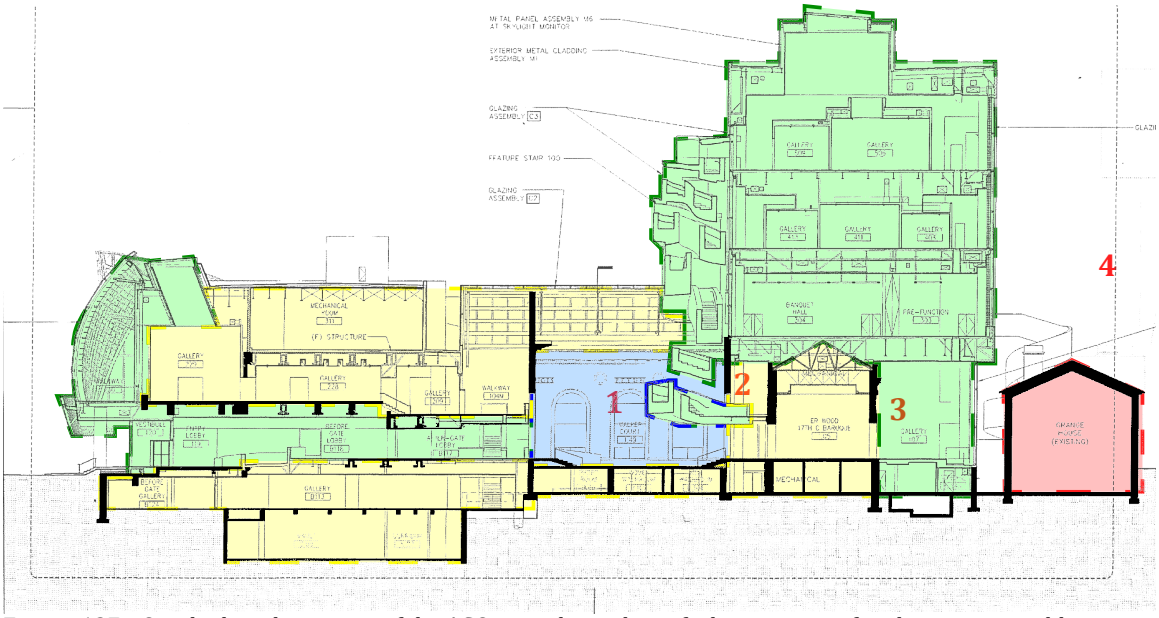


Figure: 137. Overlaid on the section of the AGO is a color coding of what remains of each successive addition. This section is really telling, because it illustrates the cannibalistic approach taken with each addition and the value contributed to each of the addition. It is evident that with Frank Ghery's addition the Grange 1817 (identified in red) remains the most significant and the Walker Court 1918-1935 (identified in blue) is important as well. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

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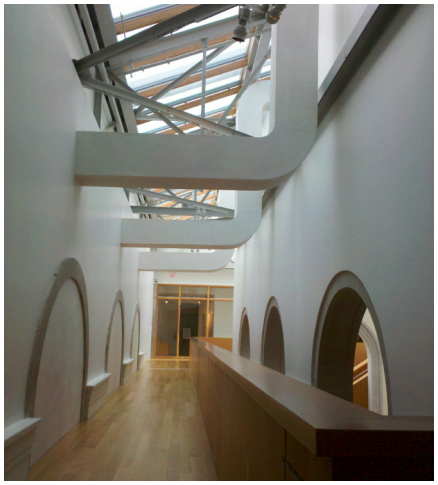

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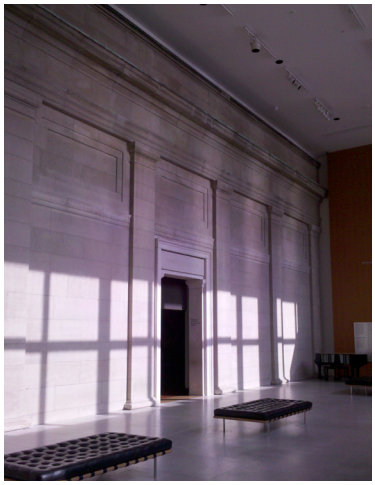

3

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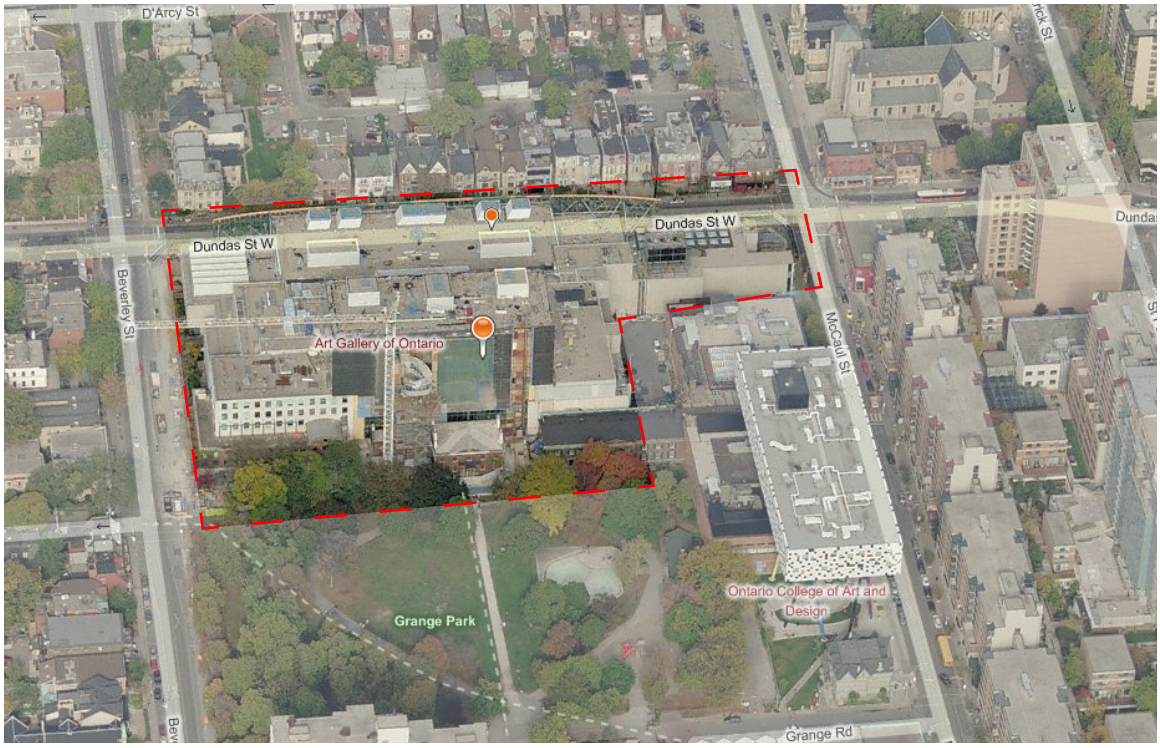
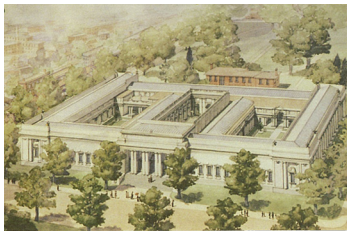
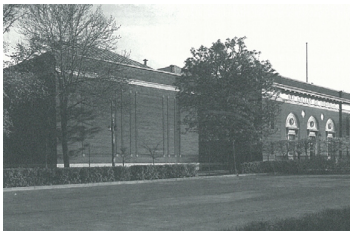
Figure: 138. Historic features that have served of the years. The section through the AGO, identifies all of the walls that existed before the most recent addition was made. The image illustrates the heritage features that can still be found at the AGO. 1 is of Walker Court. (Image Source: http://www.archilovers.com/upload/BigImageProject/b_730_13389_3.jpg)
Figure: 139. 2 is of the walkways that surround Walker Court.
Figure: 140. 3 is the lobby before the Grange.
Figure: 141. 4 an exterior view of the Grange.







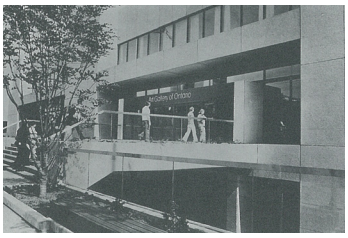


Figure: 142. Bing aerial of the ago. (Image Source: http://www.bing.com maps/)
Figure: 143. The Grange in 1909. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)
Figure: 144. The proposed Darlying and Pearson scheme 1918. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)
Figure: 145. The built Darlying and Pearson design 1935. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)
Figure: 146. Parkin 1977. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)
Figure: 147. Barton Mayers and KPMB 1992. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)
Figure: 148. Frank Gehry 2008. (Image Source: Frank Gehry Toronto; Collection of the Edward P. Taylor Research Library and Archives, AGO)

The ROM

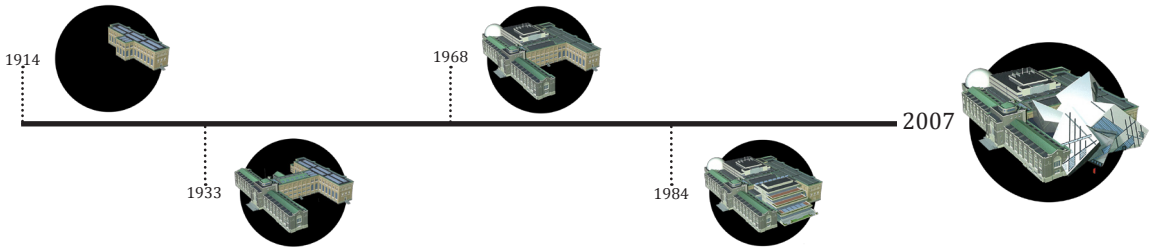


Figure: 149. The Royal Ontario museum time line illustrating how each successive addition was carefully integrated to impose minimal impact. It even shows that the 1980s addition was removed to make way for the Lee Chin Crystal. (Image Source: Kelvin Browne, Bold Visions: The Architecture of the Royal Ontario Museum (Toronto: Royal Ontario Museum, 2008).

The Royal Ontario Museum in Toronto, otherwise known as ROM, has grown into an urban storyboard of Toronto's cultural changes over the past one hundred years. Several easily distinguishable architectural styles, ranging from Italianate to deconstructivism found within this eclectic building, makes the ROM one of the best buildings to review when it comes to appreciating the benefits of additive architecture.

History of the Building's Evolutions

In 1857, the Museum of Natural History and Fine Arts was established within the Toronto Normal School. However, due to dilapidation and asbestos this original building needed to be torn down. The new ROM remained in "the cradle of Ontario's education system," St. James Square, Toronto, Ontario, Canada.[137]

His Royal Highness, The Duke of Connaught, Governor General of Canada, enlisted Frank Darling and John A. Pearson to design the original building. The plan, conceived to be built in two phases, would result in an 'H' shaped building. The building's first phase, completed and opened on March 14, 1914, opened onto Bloor Street flanking the east side of the Philosopher's Walk at the University of Toronto. It was designed in an Italianate Neo-Romanesque style, an architectural style widely used in North America in the 19th century. The architectural characteristics for these buildings are: punctuated arched windows that tier inward with detailed hood moldings, ornamental eave brackets, and cornices.

137 From Cradle to Computer: A history of St. James Square, the birthplace of Ontario education. 1984. http://library.ryerson.ca/asc/files/2012/08/cradle.pdf (accessed 12 05, 2012). 5

Figure: 150. The Royal Ontario museum time line for construction. These images depict the demolition of the Terrace Galleries, and the construction of the Lee Chin Crystal. (Image Source: Kelvin Browne, Bold Visions: The Architecture of the Royal Ontario Museum (Toronto: Royal Ontario Museum, 2008).)

In 1933, the second phase of the museum was undertaken to construct the east-facing façade that runs parallel to Queen's Park. Before the construction could commence, Argyle House was demolished to make room for the new wing. The first expansion opened on October 12, 1933, designed by Alfred H. Chapman and James Oxley. This extension to the ROM has the most prized architectural feature of the ROM, which is a Byzantine-inspired rotunda in the main entrance. The rotunda ceiling is covered with gold back-painted+ glass mosaic tiles, which depict both real and mythical animals.[138]

Although the extension of this wing was part of the original concept of the ROM, it is easily distinguished from the 1914 wing. The rear linking parts of the building used the yellow brick and the Italianate influenced details of the original building, but the front façade facing Queen's Park did not follow the original style. Rather than using yellow brick and applying the Italianate style of the original building, the front façade followed a neo-Byzantine style and elements of Gothic Revival. This style is characterized by its use of rusticated stones, triple windows, recessed arches, and a variety of relief carvings, gargoyles and statues. The shift in style reflected the changing architectural influences of the period in which it was built.

The McLaughlin Planetarium was the second expansion to the ROM, built in 1968 and named after Colonel Sam McLaughlin for his generous financial contribution of $2.5 million. Gene Kinoshita, with Mathers & Haldenby, designed the curatorial center and planetarium to occupy the south side of the heritage buildings.[139]

Shortly thereafter, Gene Kinoshita and Mathers & Haldenby were re-commissioned to design The Terrace Galleries, which occupied the north side of the ROM. The buildings were completed in 1984. This expansion also required the demolition and clearing of an outdoor "Chinese Garden" and restaurant. Queen Elizabeth II provided most of the funding for the project with a generous donation of $55 million. Existing trends of the time resulted in a simple Modern style building made using poured concrete, glass ribbon windows, pre-cast concrete and aggregate panels. The Terrace Galleries was torn down in 2004 due to dilapidation and to make room for the fourth expansion.[140]

138 Browne, Bold Visions, 101
139 Ibid. 120-121
140 Ibid. 126-128

The forth expansion to the ROM was designed by Daniel Libeskind and Bregman + Hamann Architects. Daniel Libeskind was commissioned after winning an international design competition. He was initially selected from over 50 entries, but before he was finally selected, his work, along with the work of four other finalists, was displayed for the Canadian public to critique. His design has been dubbed the Lee-Chin Crystal extension; partly because of the inspiring crystal exhibit and the generous $30 million (Canadian) donation provided by Michael Lee-Chin. The new structure would be composed of a five-part crystal design, that was originally a 6-part design, but due to budget cuts, the sixth crystal was omitted. The new extension to the museum was done in conjunction with major renovations of existing galleries, costing $270 million (Canadian) and completed in 2007. The Lee-Chin Crystal provided 170,000 additional sq. ft, 56,000 sq. ft. of which was new exhibition space to the ROM; making it the largest museum in Canada.[141]

Site and Surrounding Context

This site provides a perfect setting for a case study that compares two completely different approaches to creating extensions to existing heritage buildings.

Neighboring the ROM is the Telus Centre completed in 2007, the same year as the ROM. Viewed from Bloor street, these two buildings read as manifestations of two different schools of thought. The Lee Chin Crystal aggressively faces Bloor Street; shouting its presence, whereas the Telus Centre sits humbly behind both the High Victorian McMaster Hall and the Romanesque Mazzoleni Hall. Despite their presentations, there are a lot of similarities between the additions. Both buildings display, as part of their interior, the exterior wall of heritage buildings preserved, in this way, from weathering and exhibited like works of art.[142]

The success of the ROM's extensions can be measured just as any other additions to historic structures can be measured. When looking at the ROM one should ask: Does that extension to the ROM damage the integrity of the structure? Being that the Lee Chin Crystal can be removed at the discretion of the ROM, since only the circulation penetrates the two heritage buildings, there is no loss of historic integrity. Does the Lee Chin Crystal take away from the presence of the existing heritage buildings? When looking at the overall

141 Jane McLean, Royal Ontario Museum (ROM) Opens Michael Lee-Chin Crystal, June 3, 2007, http://gocanada.about.com/b/2007/06/03/royal-ontario-museum-rom-opens-michael-lee-chin-crystal.htm (accessed October 30, 2009).

142 Sean Stanwick, Design city Toronto (Hoboken, NJ: John Wiley & Sons, 2007). 71

appearance of the ROM, the answer is no, since from most pedestrian approaches, the Lee Chin Crystal is hardly perceptible. When approaching the ROM from the Bloor St. elevation, the dynamic form may appear to dominate the two heritage buildings that sit beside it. Whereas, when making an approach to the front entrance of the ROM from Queens Park or from the Philosopher Walk, the Lee Chin Crystal is hardly perceptible, with the exception of a few crystalline structures that peers over the parapet of the building enticing curious pedestrians. The masking of the addition from so many angles does make the Lee Chin a more sympathetic addition to the original structure. To the north, the ROM faces Bloor St., a busy street full of internationally recognized name brand stores. To the east the ROM faces Queens Park where the Lee Chin Crystal is not visible. The Lee Chin Crystal is only really perceptible from Bloor Street; with only the edge of the restaurant projecting over the roofline of the original building.

Growth and Preservation Strategies

What makes the ROM's growth strategies so smart is that it has managed to successfully marry existing buildings with contemporary structures over the century on the same property while staying open. In 2005, ten renovated galleries reopened; then, in 2010, they opened ten more. In total, over 150,000 sq.ft. of the 1914 and 1933 wings have been renovated. The final extension with the Lee-Chin Crystal included an allocation of funds for the renovation of over 75 percent of the heritage galleries.[143]

The growth of the ROM has ensured that the preservation of the interior style has been retained with each progressive addition. The ROM is clearly not a typical example of additions because the building was mostly stitched together, allowing each of the extensions to stand stylistically independent and, yet, to function successfully as a whole. Unlike most cases of this kind, the existing buildings were not gutted. This form of growth has worked well, as visitors navigating through the museum pass a series of thresholds, each of which delivers them into a different architectural period. In some spaces two architectural styles converge and co-exist.

The ROM is a successful integration of architectural styles that does not compromise the buildings' integrity: this is a particularly interesting aspect of the ROM.

143 Browne, Bold Visions. 138-144

Every successive addition made to the original building was designed in a manner that expressed that period in time for which it was built, creating an eclectic collection of architectural styles, ranging from Roman-inspired Italianate, Byzantine influenced, Modernist, and now a Deconstructivist crystalline-form structure. The new Lee-Chin Crystal's envelope is covered mostly with aluminum clad and glass.

Although the new addition required the demolition of a previous addition, the Terrace Galleries, the Lee-Chin Crystal addition integrated itself with historical buildings without damaging any historically relevant features. In an effort to retain the integrity of the original building, the new addition's canted walls were designed to sit on top of existing walls. The most imposing parts of the new construction are the circulation routes that connect the new form and the existing building.[144]

The intent of the new expansion to make the ROM more open and accessible to the public was accomplished by creating a built form that reads more open, blurring the lines of the threshold. Though the new crystalline structures encapsulate many interesting spaces, the most captivating space is the Event Hall. The Event Hall displays the existing heritage building's exterior wall like a work of art.

The original building and the first expansion were listed in 1973 as heritage buildings of Toronto. Over the past decade, effort made to restore parts of the ROM from the early 20th century has been and still is the largest heritage project in Canada. Rehabilitation to these buildings includes cleaning of the exterior bricks.[145]

Observations

Being that the Lee Chin Crystal is the result of a design competition with a public review conducted in June 26, 2001, it can truly be said that the addition reflects the publics' interest. Three finalists' designs were put on display, so that the public could to examine and comment on the proposed additions.[146]

144 Browne, Bold Visions. 138-144
145 Browne, Bold Visions. 138-144
146 Browne, Bold Visions. 138-144

The public's reaction to the newest ROM expansion, designed by Libeskind, has been edgy just like the design of the building. On June 1, 2007, the "Michael Lee-Chin Crystal", was open to the public by Governor General Michaëlle Jean. Everything about this building was controversial, from its conception, to its budget and construction time over-runs.[147]

Many people feel that the Lee-Chin Crystal is a failure as a building and a waste of money. The Lee-Chin Crystal has actually been named the 8th ugliest building in the world by Virtual Tourist.com. Lisa Rochon, from The Globe and Mail, said that the Lee Chin Crystal is "the building most likely to come down in the next 20 years."[148]

Despite the fact that some people feel disappointed by the newest addition to the ROM, there are other people who feel inspired. "Condé Nast Traveler's 2008" lists Michael Lee-Chin Crystal extension as one of the New Seven Wonders of the World. The book "Off the Tourist Trail: 1,000 Unexpected Travel Alternatives," praises the Michael Lee- Chin Crystal for being an architectural addition that reflects the 21st century. Whether they think the newest addition is a nice building or not, people cannot contest the 60 percent increase in visitors since the opening of the ROM in 2007.[149] The Lee-Chin Crystal extension was conceived as a way to rejuvenate the ROM and providing additional space, while preserving

147 Browne, Bold Visions. 138-144

148 Richard Prouty, Libeskind's Napkin, May 28, 2008, http://onewaystreet.typepad.com/one_way_street/2008/03/libeskinds-napk.html (accessed July 21, 2011).

149 Royal Ontario Museum, Renaissance ROM Fact Sheet, February 2008, http://www.rom.on.ca/about/newsroom/pdf/renromfacts.pdf (accessed July 21, 2011).

Figure: 151. This image shows how part of the Crystal is connected to the 1930' addition. (Image Source: http://www.gogobot.com/royal-ontario-museum-toronto-attraction)

Figure: 152. This image shows how part of the Crystal is connected to the 1910' addition. (Image Source: http://www.dipity.com/tickr/Flickr_rom/)

Figure: 153. This image shows how part of the Crystal is connected to the roof of the 1910' addition. (Image Source: http://www.epab.bme.hu/oktatas/2009-2010-2/v-CA-B-Ms/FreeForm/Examples/OntarioMuseum.pdf)

the two heritage buildings that make up the majority of the existing Museum. If, in the next 20 years or so, the Lee-Chin Crystal should be removed, the two heritage buildings of the ROM would be virtually left intact.

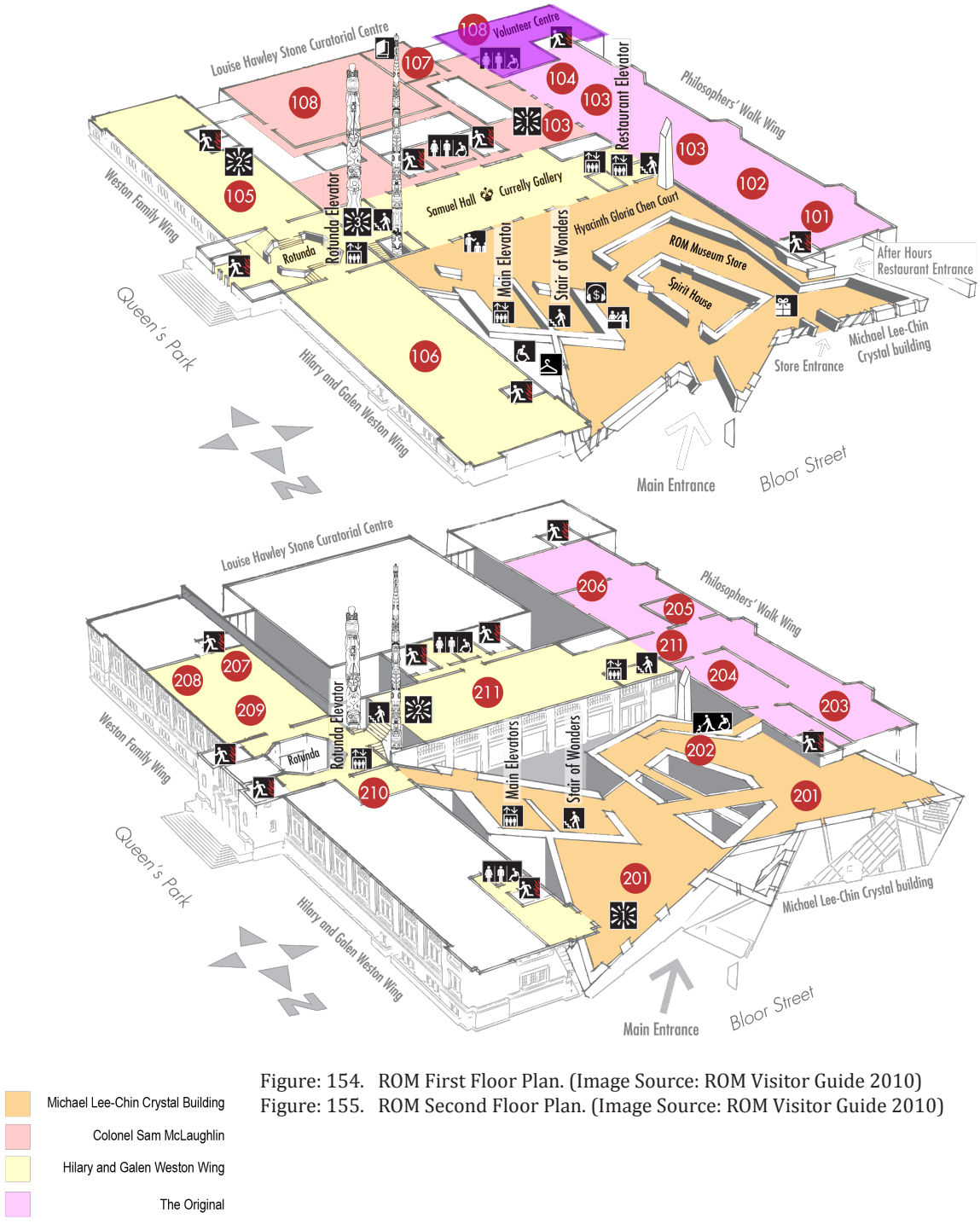


Figure: 154. ROM First Floor Plan. (Image Source: ROM Visitor Guide 2010)
Figure: 155. ROM Second Floor Plan. (Image Source: ROM Visitor Guide 2010)

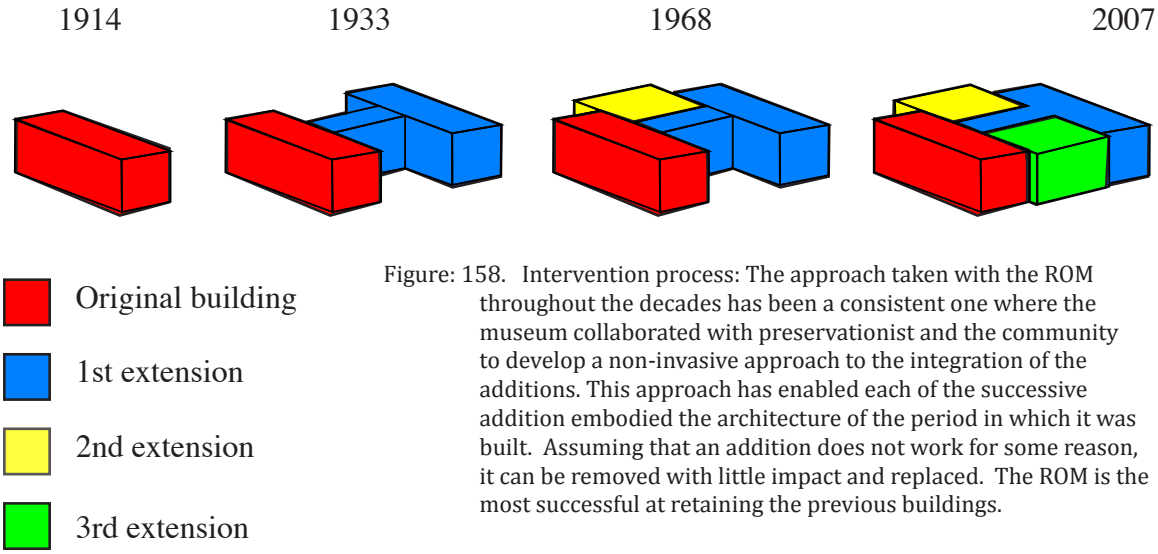


Figure: 158. Intervention process: The approach taken with the ROM throughout the decades has been a consistent one where the museum collaborated with preservationist and the community to develop a non-invasive approach to the integration of the additions. This approach has enabled each of the successive addition embodied the architecture of the period in which it was built. Assuming that an addition does not work for some reason, it can be removed with little impact and replaced. The ROM is the most successful at retaining the previous buildings.

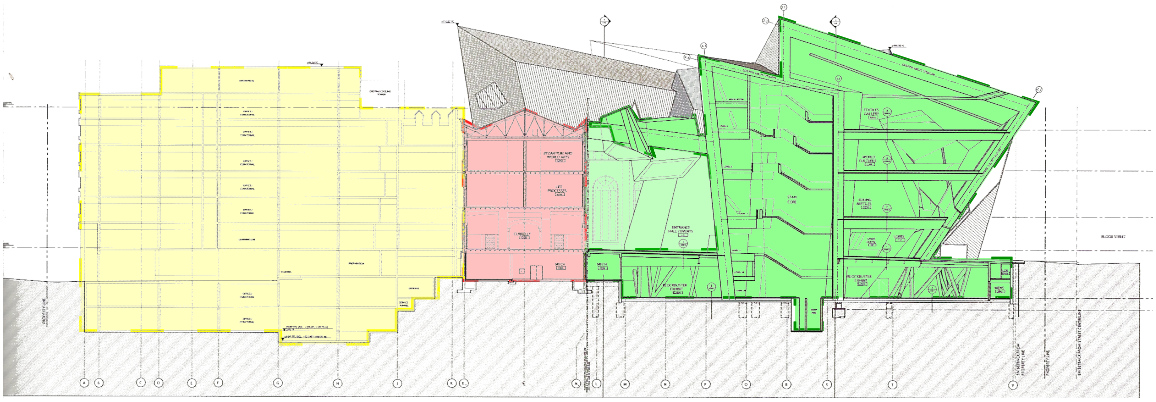


Figure: 156. This section shows a clear delineation between each successive addition, the section is cut perpendicular to Queen's Park. (Image Source: Kelvin Browne, Bold Visions: The Architecture of the Royal Ontario Museum (Toronto: Royal Ontario Museum, 2008).

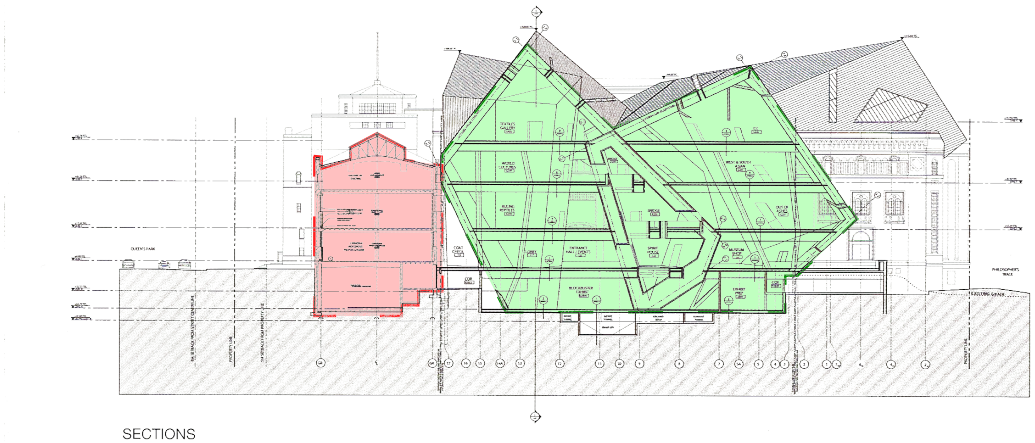
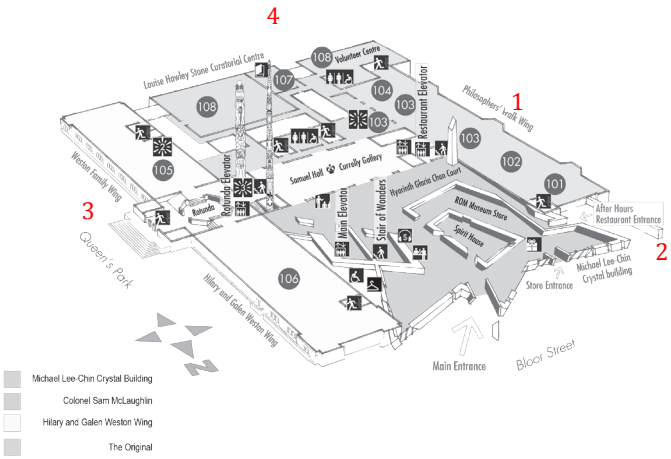


Figure: 157. This section shows a clear delineation between each successive addition, the section is cut perpendicular to Bloor Street. (Image Source: Kelvin Browne, Bold Visions: The Architecture of the Royal Ontario Museum (Toronto: Royal Ontario Museum, 2008).

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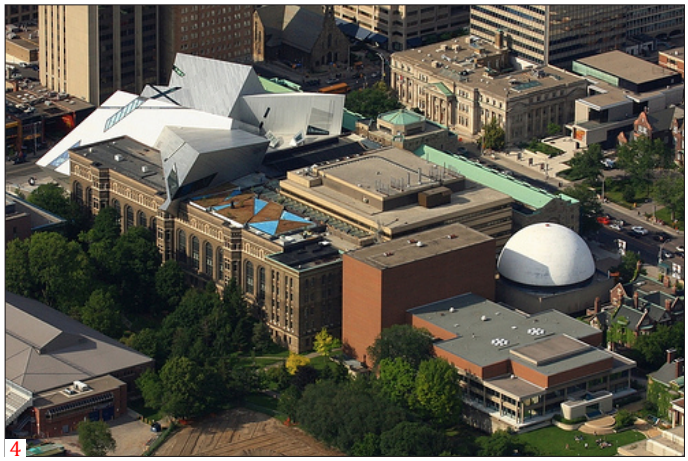
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Figure: 159. These buildings illustrate the modest coverage (not imposing nature). (Image Source: http://2modern.blogs.com/photos/uncategorized/2008/06/19/structure5.jpg)

Figure: 160. 1 depicts the Lee Chin Crystal peering over the heritage building.

Figure: 161. 2 shows a situation were one side of the heritage building is dominated by the Lee Chin where as the other side is untouched. (Image Source: http://media.cleveland.com/travel_impact/photo/9710232-large.jpg)

Figure: 162. 3 is an image of the view from Queens Park were the Lee Chin is not even visible. (Image Source: http://www.panoramio.com/photo/9694537)

Figure: 163. 4 illustrates the Lee Chin Crystal only occupies 1/4 of the site. (Image Source: http://farm4.staticflickr.com/3082/2635644816_278a66cf54_z.jpg?zz=1)

Figure: 164. The interior. These images illustrate the way that the interior has managed to retain the aesthetic of the period.

Figure: 165. 1 is an image of the Rotunda. (Image Source: http://www.rom.on.ca/about/history/rotunda.php)

Figure: 166. 2 is a image of the exterior of the McLaughlin Planetarium. (Image Source: http://cdn5.wn.com/pd/1b/07/03fbe3ec201bf2b148f7277040ce_grande.jpg)

Figure: 167. 3 is an image of the 1933 lobby. (Image Source: http://dcnonl.com/article/20060111200)

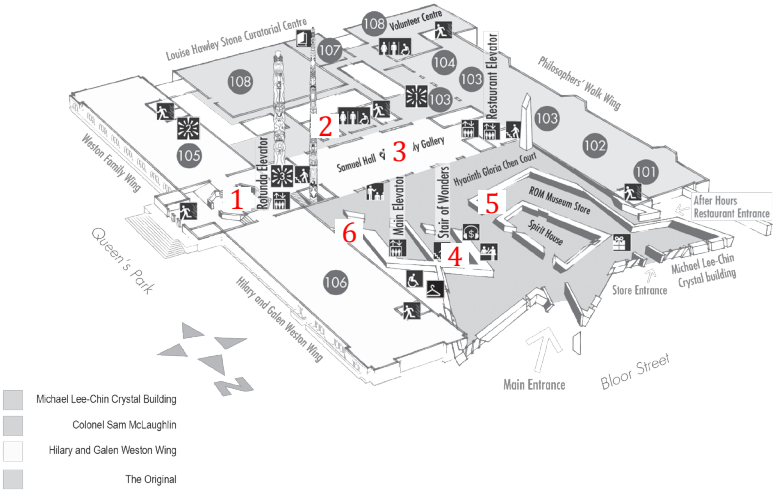
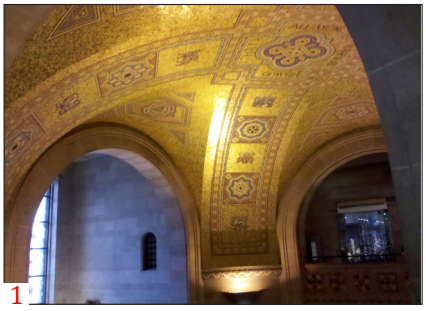


Figure: 168. 4 is the stairs of wonders, which is a recent addition.

Figure: 169. 5 is one of the Gallery spaces, within the Lee Chin Crystal that reflects the form of the exterior walls. (Image Source: http://torontoist.com/2009/03/from_the_sidewalk_to_the_institution/)

Figure: 170. 6 is one of the point where the heritage building and the Lee Chin Crystal connect.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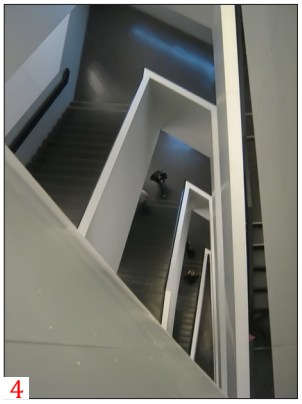
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Figure: 171. Aerial Bing map ROM. (Image Source: http://www.bing.com/maps/)
Figure: 172. The original building designed in 1914. (Image Source: http://chuckmanothercollectionvolume3.blogspot.com/2008/05/blog-post_3574.html)
Figure: 173. The second phase undertaken in 1933. (Image Source: http://torontoist.com/2010/01/historicist_depression_skyscraper_debacle/)
Figure: 174. The McLaughlin Planetarium 1968. (Image Source: http://www.glasssteelandstone.com/BuildingDetail/3525.php)
Figure: 175. The Terrace Galleries 1984. (Image Source: http://www.thecanadianencyclopedia.com/media/royal-ontario-museum-1014.jpg)
Figure: 176. The Lee-Chin Crystal 2007. (Image Source: http://www.flickr.com/photos/bencito_traveller/4750388278/)

Military History Museum

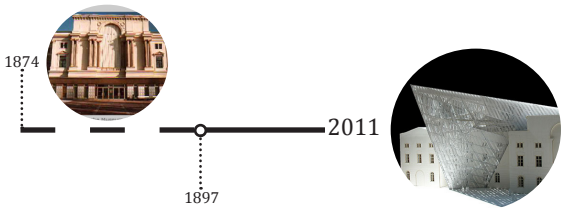


Figure: 178. Military History Museum's time line for addition.

In the end, the ROM is a successful example of how an addition can be integrated without undermining the existing building. Additionally it serves as an example of how elements of an existing building can be obscured from the street, but displayed and protected within the new addition. The way in which the ROM has displayed the obscured elements of the existing building has provided the visitor of the museum with a new experience of the heritage structures.

Unlike the other examples, the addition to the Military History Museum (MHM), in Dresden Germany, cuts through the original building leaving the majority of the interior intact. MHM, designed by Daniel Libeskind, is the most provocative of the case studies presented in this chapter. The new extension creates a convergence of place and time by bisecting the 19th century arsenal building with a conceptual arrow of glass and steel. The interpenetration of the old by the new creates an interesting case study.

Figure: 177. Military Museum under construction. (Image Source: http://blog.archpaper.com/wordpress/archives/6751)

History of the Building's Evolution

The original building used to develop the MHM is an old German arsenal, built in 1873-1876 by Hans-Gunter Merz in a Neo-Classical style.[150]

It was adapted into a museum in 1897, called the Saxon armory and Museum, later becoming a museum for the Nazi regime. In 1989, the museum was shut down. A design competition was held in 2001 for an extension to the Military History Museum and the reopening of the museum. The new mission of the museum was to make people reconsider and reflect on war. Daniel Libeskind was the competition winner. On October 6, 2008, the final beam was placed on the Military History Museum and the opening was scheduled in 2010. Fraught with delays, the project's opening was pushed back to the fall of 2011.[151] Completed in October 2011 the MHM is Dresden's largest museum, and the official central museum of the German Armed Forces; with 20,000 square meters of exhibition area.[152]

Site and Surrounding Context

The old arsenal is located on the northern periphery of Dresden, "a town almost entirely decimated by Allied forces in 1945 at the end of World War II." The city of Dresden has successfully rebuilt many of the important civic buildings, as they existed pre-1945. The citizens of Dresden desired to regain a sense of normalcy and peace by reconstructing the historical city's pre-war essence. [153]

Growth and Preservation Strategies

The philosophy of this museum's growth approach lies in the middle between a direct addition and Facadism. The extension provides an unconventional experience for the museumgoers bridging the gap between the old and the new. The MHM, is intended to be a museum of reflection, thus the addition was conceived as a figurative arrow. The symbolic nature of cutting the building into pieces is very reflective of war. A 140-ton wedge of glass, concrete, and steel will intersect the one hundred thirty five year old heritage building.

150 "Military Historical Museum as Leitmuseum the Bundeswehr (army, air force and navy) Thinking about War and Peace," http://translate.google.com/translate?hl=en&langpair=de%7Cen&u=http://www.das-neue-dresden.de/bundeswehrmuseum-dresden.html (accessed August 01, 2011).

151 Christoph Münch, Star architect Daniel Libeskind designs the Military History Museum of the Bundeswehr in Dresden, March 22, 2011, http://www.dresden.de/en/02/press_service/press_releases/exhibitions/M1104ex05.php (accessed July 23, 2011).

152 Studio Daniel Libeskind, Military History Museum, http://www.daniel-libeskind.com/projects/show-all/military-history-museum/ (accessed December 15, 2010).

153 Ibid.

A 30-meter high viewing platform at the peak of the wedge structure penetrates the neo-classical building. The arrow points to the old city center to serve as a reflection of the devastation caused by war.[154]

The new façade is conceived against the background of the existing arsenal building in response to and in contrast to it. The MHM embodies a duality seen both with the exterior and interior, and expressed through materiality and texture. Besides expressing the duality between old and new, the interior of the museum expresses, as well, the stylistic evolution of architecture and technology. At the same time that the addition was being constructed, the existing building was being refurbished.

The openness and transparency of the new façade stands out against the opacity and solidity of the old façade. "It is a dialogue between old and new," said Libeskind, referring to this inherent conflict in the building. In the new elevation of the Museum, both are visible at the same time, one through the other. This outer correlation corresponds to the juxtaposition of new and old in the building's interior: The rigid column grid of the old Arsenal is contrasted with a new column free space. The interplay of both together forms the character of the new Military History Museum.[155]

Observations

Just as with the Jewish Museum Berlin there is a story being told, in this case the architectural incision reflects the brut force of war.

Unlike the ROM where all of the Lee Chin Crystal sits on the outside of the two heritage buildings, Libeskind has literally cut a "v" out of the center of the 19th century building retaining only the staircase, which has created a spatial convergence. The historical staircase is used as a vestibule to the present.

MHM's growth is similar to that of the Contemporary Jewish Museum (CJM) and the CaixaForum. However, these buildings diverge when it comes to the execution of the addition. Unlike the CJM and the CaixaForum, the MHM's addition integrates the existing

154 Studio Daniel Libeskind, Military History Museum.

155 Studio Daniel Libeskind, Topping out Ceremony for Dresden's Military History Museum, October 06, 2008, http://www.daniel-libeskind.com/media/single-view/browse/5/article/366/topping-out/ (accessed December 15, 2010).

arsenal in a way that not only allows the exterior juxtaposition of architectural style to be showcased, but also showcases old and new within the interior of the building, in much the same way as the ROM, but more fluidly.

On the CJM all that remains of the original building is one façade. MHM has restored the interior and exterior of the original building, but has removed a wedge from the original building. Just as Herzog and de Meuron understood that elements of the Power Station could be removed with minimal real historic loss, Daniel Libeskind understood that the same could be accomplished with the old arsenal. The whole of the addition and the original building are successful because, the extension to the Military History Museum gives new life, meaning, and perspective to the original arsenal.

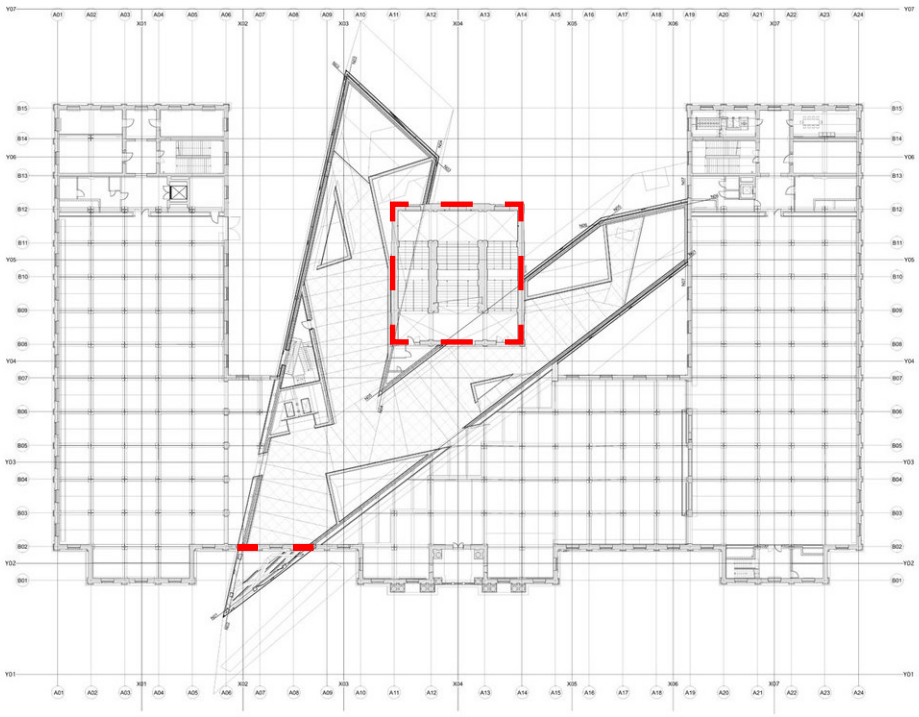


Figure: 179. Second floor Military Museum. Highlighted in red the portion of the front facade that the addition bisect and the original stairs of the old arsenal building. (Image Source: http://europaconcorsi.com/projects/182957-Military-History-Museum)

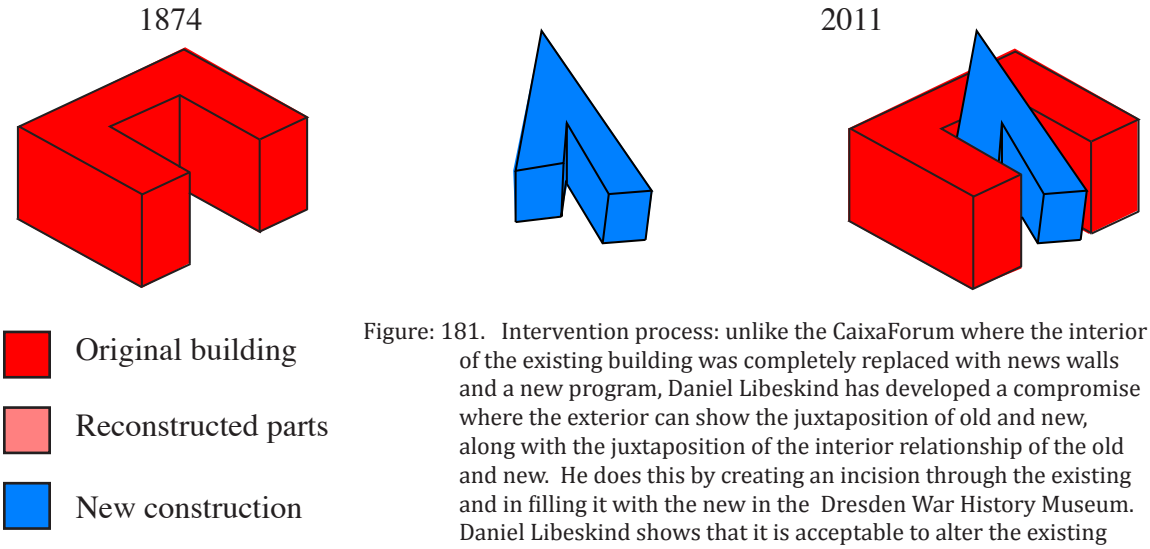


Figure: 181. Intervention process: unlike the CaixaForum where the interior of the existing building was completely replaced with news walls and a new program, Daniel Libeskind has developed a compromise where the exterior can show the juxtaposition of old and new, along with the juxtaposition of the interior relationship of the old and new. He does this by creating an incision through the existing and in filling it with the new in the Dresden War History Museum. Daniel Libeskind shows that it is acceptable to alter the existing when creating a new dialogue and experience for the users.

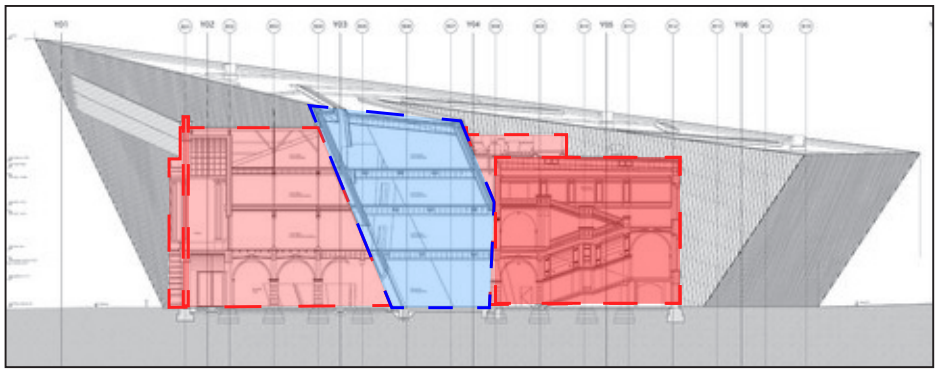


Figure: 180. In this section the integration of old and new is weaved together enabling the visitors to experience the past and the presents simultaneously. It is on the ground floor that the juxtaposition of old and new will be the most evident. It is walking through the arches of the existing and encountering the open floor plan of the new that will articulate the change in technologies. (Image Source: http://europaconcorsi.com/projects/182957-Military-History-Museum/images/2879699)

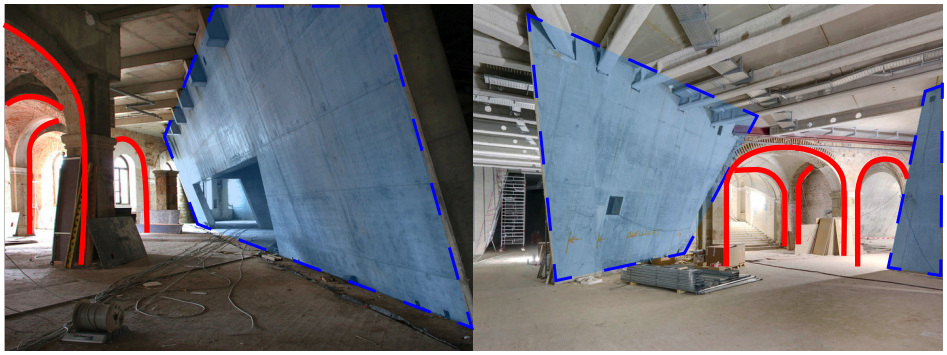


Figure: 182. This image illustrates the juxtaposition seen in the interior of the Dresden War History Museum. (Image Source: http://www.archello.com/en/project/military-history-museum)

Figure: 183. This image illustrates the juxtaposition seen in the interior of the Dresden War History Museum. (Image Source: http://www.archello.com/en/project/military-history-museum)

Figure: 184. Aerial of the Military Museum. (Image Source: http://www.bing.com/maps/)
Figure: 185. The Arsenal building built in1874, reconstructed sometime after 1945. (Image Source: http://www.dresden.city-map.de/03040900/militaerhistorisches-museum-der-bundeswehr)
Figure: 186. Daniel Libeskinds addition to the 19th century arsenal building. The newly completed in 2011. (Image Source: http://daniel-libeskind.com/projects/military-history-museum/images)

Evidence that architects were successful in building additions to the Jewish Museum Berlin and the Tate Modern is that they were invited back to create a second addition to the Museums. Another measure of success of additions to The Louvre, Jewish Museum, Royal Ontario Museums, Art Gallery of Ontario, and the Moritzburg Museum is that they have seen an increase in annual visitors since the integration of their new additions. Even though the Tate Modern and the CaixaForum additions were newly established in abandoned buildings, they were successful as satellite museums of a larger organization. In addition to an increase in the overall annual visitors, the Tate Modern and the Louvre have been notably identified as the most visited museums in the world in 2010 according to The Art Newspaper April, 2011.[156]

Each of the nine museums covered in this chapter illustrate a different approach to the integration of additions to heritage buildings. While attributes are covered in each of the case studies, a brief overview will identify how these projects inform future efforts to develop heritage buildings. Although extensions have been made throughout the centuries, there has been a paradigm shift in the way that people address how additions should be incorporated. There are three dominating design features that play a role in ensuring the retention of intrinsic values of heritage properties: contrast, functions, and integration.

Contrast

An addition to a historic building should not be merely a crutch; the relationship of contrast between historic jewels and new additions should be incorporated and celebrated.

Developing the juxtaposition between the old and the new needs to move beyond creating a continuity of parts through conventional means, such as lining up the windows and the heights of the addition to the original building, and matching the materiality of color. All of the case studies used materiality, texture, stylization, spaces, and proportioning as tools to develop and perpetuate the heritage properties that were being added to, but did so in a manner that furthered the architectural story of the area.

Generally, it is accepted that to complement an existing building is to pay homage by creating a subtle deviation of the original building. This dissertation will make the argument that a significant way to contribute to a building's architectural narrative is to integrate an addition that recognizes a building's history but also furthers the trajectory of its evolution. Furthermore, the addition can be innovative. If the building is rectangular, make the

156 The Art Newspaper, "Exhibition and Museum Attendance Figures 2010."

addition circular. Contrast with existing elements is important when it comes to retaining the integrity of the existing building. The extension should be designed to reflect the period in which it was constructed. In addition, architectural diversity contributes to the dynamic nature of a city.

Linking an addition through materiality is a common practice because immediately a relationship is made between the existing building and the addition. One of the defining elements in these archetypes is the use of new materials or of traditional materials used in new ways. Berlin Neues Ostfassade, while not an addition, is an example of using materials similar in color to create a connection with the nearby ruins of the original 19th century museum.[157] However, in the case studies covered in this dissertation the additions used materials that were distinctly different in color, texture, and/or scale. In the Art Gallery of Ontario blue clad titanium was used and in the Contemporary Jewish Museum blue clad steel was used against red brick of the heritage buildings. In the CaxiaForum a color similar to the original building's brick was used on the roof, but the texture of the material is strikingly different; the new roof is composed of rusted metal panels.

Designing an addition to a heritage building is complicated being that it requires that the surrounding context, the spatial and aesthetic relationships of the existing building, and the integration of the proposed addition all need to be taken into account. Proportion and scale of the original building compared to the addition is a major factor. Most of the museums covered in the case study section have doubled, and in the case of the CaixaForum quintupled, useable space. Arguably, the substantial increase in useable space could not have been achieved (in most cases) if the scale and proportioning of the addition was based simply on the size of the existing building. The addition first and foremost has to meet the projected needs of the program.

Functions

The form of the place needs to reflect the function of the space. Arguably, the primary purpose of any building is to meet the programmatic requirement of the users. These additions, moreover, have captured the curiosity of many, and they have triggered a dispute on how museums should be designed. This is where the White Cube vs. Dynamic Spaces comes into play. Museums are no longer merely filled with permanent exhibits of wall hung paintings and marble statues. Museums are as diverse as the communities in which they exist, and they are often expected to feature a wide range of artwork including

157 Neues Museum, Architecture, 2012, http://www.neues-museum.de/architektur.php?lang=en (accessed November 07, 2012).

media art, megalithic sculpture, and performance art. To function, modern museums need three types of public areas: "white cube," dynamic spaces, and buffer zones. When these different types of space are mixed together a more interesting spatial experience is created.

White Cube

White cube is used in this dissertation to identify interior spaces that are rectilinear and simple; this term is often used in the museum community.[158] Frank Gehry believes that interior spaces of museums need to be a blank canvas for the art. This is why in the Art Gallery Ontario only the Gallery Italian and the staircases have canted walls.

Dynamic Spaces

The interior spaces that are too large, not neutral, and have non-rectilinear walls will be identified as dynamic spaces.

Many gallery and exhibit designers for temporary installations would rather have the blank canvas of a "White Cube," with modest ceiling heights. It is difficult to design and exhibit in a space that has curved walls because there is a need for mechanisms against which to prop the works of art. It is also felt that such lively spaces are not conducive to displaying art because the visually interesting space competes with the artwork for viewers' attention. Others have found these buildings with dynamic spaces to be refreshing and especially appropriate for permanent exhibits. In many new museums, these dynamic spaces become canvases inviting creativity by inspiring artists to create new pieces that speak to the space as well as the visitor. The bottom line is that art is ever changing to reveal the social climate; architecture needs to inspire and challenge visitors, artists, and curators.

None of the case studies covered only employ one treatment of gallery spaces; rather the spaces are composed of a mixture of the white cube and the dynamic spaces, making each space appropriate for different kinds of art. Architects like Daniel Libeskind have presented dynamic spaces that integrate heritage buildings with avant-garde additions. The new space and the existing spaces are woven together in such a way that the past and the present are experienced simultaneously. For example, the Royal Ontario Museum has successfully managed to integrate conventional white wall spaces, high ceilings, and canted walls. The Military History Museum in Dresden illustrates this integration of the

158 Newhouse, Towards A New Museum, 49

old and new perfectly. The sharp arrow-like form of the extension converges with the late 19th century arsenal, creating an area where the arched structure of the existing building coexists with the new building's spanning structure.

The Art Gallery of Ontario has carefully designed different spaces for different kinds of exhibits, for example the Galleria Italian. This large and sculptural gallery is connected to the 1960s extension and the 1930s extension at several points that create various experiences. Some of the gallery spaces have a large warehouse feel with 20' ceilings displaying canvases of comparable size—canvasses so large that slits had to be cut into the floor to raise them. Then there are the conventional white cube spaces in the AGO with relatively low ceilings. Finally, there are other dynamic spaces like the Galleria Italian where the architecture itself becomes a part of the permanent collection.

Buffer zones

Large event halls, atrium space, or a clearstory area, which will collectively be called buffer zones, typically mark the transition between existing spaces and the new structure. Buffer zones can be created in a number of ways, and can take on attributes of both the white cube and the dynamic space. These buffer zones will always be located within interior areas where the old and new visually coexist and where there is a large wall of homage. These walls of homage are the exterior walls that have been enclosed within the integration of the new addition and are, thus, protected from further weathering. While some of the heritage building exterior features are obscured from the street the covered elements are celebrated inside of the new extension. These buffer zones need to create a dialogue between the existing building and the new building. In these spaces the old and the new frame each other, bringing attention to each building, and making them parts of the museum's permanent collection, as was done in the Moritzburg Museum, the Royal Ontario Museum, The Military History Museum, and the Art Gallery of Ontario. The Royal Ontario Museum (ROM) has created buffer zones where the 1914 building, the 1933 building, and the crystalline light wells and interior walls of the newest addition coexist. The Art Gallery of Ontario (AGO) created a buffer zone in the Walker Court, an area where the 1935 addition's original court is showcased alongside the new sculptural staircase.

There are less grand spaces where the juxtaposition of form creates framed elements of the existing building as though it is a sculpture. A perfect example of this can be seen within the interior of the ROM. In the Lee Chin Crystal's new gallery space designed

by Daniel Libeskind there is an exposed corner of the 19th century building against the white interior finish of the Lee Chin Crystal. Daniel Libeskind's approach to developing the addition around all of the existing elements of the heritage building is critical and enables the successful retention of the existing building.

Integration

While the program dictates the mass of an addition, the integration of an addition to an existing heritage building is influenced by site conditions and the discretion of the architect and stakeholders.

All additions are integrated through circulation, which makes circulation the most important element of the design after the program. There are basically two categories in which additions can integrate with the original building: façadism and directly.

Façadism

Museums that moved into an existing building are usually examples of façadism. The buildings selected for these projects are often great examples of masonry and have a strong sense of regional identity. Industrial buildings are often used as a platform for façadism because of their high ceilings. This approach is permanent since in the process all of interior elements are removed leaving only historical elements of the exterior facades. The façades of these buildings are often extensively reconstructed. The application of façadism enables the streetscape to be perpetuated and for the new program to maximize interior space creating more floors. Examples of façadism are the Tate Modern, the CaixaForum, the Moritzburg Museum, and the Contemporary Jewish Museum.

The Tate Modern and the CaixaForum are successful as urban forms of growth because they grow vertically from within the existing envelope of their heritage buildings. The upward development of the Tate Modern and the CaixaForum would be ideal was it not for the complete loss of the interior context. Another example of vertical growth would be the Moritzburg Museum, which occupies and integrates the existing ruins of a 15th century castle. Then there is the Contemporary Jewish Museum, which penetrates the façades of the existing building and expands both vertically and horizontally. It should be noted that not all examples of façadism will experience growth beyond the envelope of the existing building.

Direct Integration

Direct integration occurs when the surface of the addition is directly connected to the existing building. Direct integration is generally seen in four ways: connection through a wrapping growth; connection through a thoroughfare, connection by enclosing existing spaces; connection by pocket additions; and connection by rooftop additions.

Connection by Wrapping Growth

In this kind of connection, each successive addition envelopes the preceding structure like Russian nesting Dolls. An example of such a phenomenon is the Art Gallery of Ontario whose additions were constructed to retain the heritage building hidden within each modern intervention. This is the least desirable approach of adding to a heritage building because of the permanent loss, and the fact that there was little effort made to highlight each successive growth phase. The AGO is successful in its own merit, but it has had a few laps in judgment when it comes to the cannibalistic way in which each of the successive additions have integrated with the existing buildings.

Connection by Thoroughfare

Connection by thoroughfare means additions that were only connected through circulation accomplished by underground connections, bridges, hallways, or large concourses. Architects often highlight where the original ends and the new begins by offsetting the first ten feet of the addition and then simply realigning it. This method of connection is used when there is a need for an addition, but a desire to keep the two buildings separate. As illustrated in the Jewish Museum Berlin and the Louvre.

The Jewish Museum Berlin brings non-conventional architecture one-step closer to being the equal of the heritage buildings in that this addition hides nothing. It places a full bold building right next to the heritage building only linking the existing building with a small connection for circulation. This form of growth gained popularity after the preservation movement picked up momentum. In the late 1980s early 1990s, this form of extension was the most common approach taken when the site had enough open space between the buildings.

Connection by Enclosing

The enclosing approach is often the approach taken in dense areas, where open air courtyards have been enclosed to create congregating areas, additional lobby space, and multimedia rooms. The enclosure of a courtyard is typically done with a glass canopy-like cover; examples would be the Richelieu Wing at the Louvre and the Sukkah at the Jewish Museum Berlin. An example of the enclosing of a courtyard for the purpose of adding gallery space would be the Islamic Wing at the Louvre.

Then there is the enclosed connection between multiple buildings, creating a cluster of separate buildings that operate as one. The union of disparate buildings is often done to utilize "urban voids," because many of heritage buildings were not equipped to handle crowds. Enclosing urban voids both unites separate buildings through circulation and creates additional lobby space, an example would be the Wadsworth Atheneum proposed extension by UN Studio; and the Morgan Library designed by Renzo Piano.

Another variation of the enclosing would be a plug-in addition. Plug-in additions use three of the existing building's exterior walls; an example would be the Royal Ontario Museum (ROM) where the Lee Chin Crystal is positioned in-between the wing of the 1914 and 1933 building of the ROM.

The ROM is a great example of how additions can and have been removed. The ROM's most recent addition actually replaced an earlier addition that was designed in a removable manner, as well. The Lee Chin Crystal's way of attaching to the original building enabled the retention of the original building's interior and exterior defining characteristics, which makes this approach to growth very successful. Generally, when the addition can be removed, the addition is set apart from the existing building, or connected at a few basic points. In the case of the ROM, existing openings such as windows were used to connect the circulation between the original structure and the addition.

Connection by rooftop structures

Rooftop additions are typically applied in dense urban settings where land is a limited resource and property setbacks have already been maxed out; building up is the only option. The rooftop addition is one of the most valuable forms of growth when it comes to sustainability of the built environment.

There are few examples of museums with rooftop additions. The CaixaForum, the Tate Modern, and the Moritzburg Museum are actually examples of façadism bursting over the roofline. Perched on the roof of the 1933 wing of the Royal Ontario Museum's (ROM) Lee Chin Crystal is the restaurant, that can provide a glimpse of the dynamic relationship that can be created with rooftop additions. The Art Gallery of Ontario is an example of a rooftop addition, however, all of the previous interventions have mudded the distinction of old and new. Museum Kuppersmuhle of Modern Art MKM, design by Herzog and de Meuron, will be an example of a rooftop when it is built. Although rooftop additions are not frequently used, there is a need to briefly introduce their potential opportunities and constraints, because in the design portion of this dissertation, a rooftop addition is proposed for the expansion of the Whitney Museum.

Rooftop structures, more so than extensions, can be quite expensive in the current market because it is not a regularly practiced form of architecture and often the jobs are too small to be cost effective. Many of the additional costs are for legal fees and permits. These existing issues preventing the development of rooftop additions are the result of current preservation practice, zoning, and to some extent building codes. This method of adding to buildings needs to be made more accessible since they have been proven to be an asset to the healthy development and densifying of the built environment.[159]

A substantial rooftop addition would likely be permanent, being that it would require structural support for the weight of the addition. Also, the rooftop structure needs to account for all extended mechanical systems as well as water, sewage, etc. Finally, there is the need to integrate vertical circulation.[160] As technologies in the architectural profession advance, rooftop structures are beginning to show promise, with modest single or double story additions. Even though these structures are currently expensive they, are still a part of the future

Why Buildings Need to Grow

The ways that people live and operate today have changed and require adjustment of the built environment, whether it is spatially, technologically, or aesthetically. Growth of the built environment is an economic issue as the cost of maintaining a heritage building must often be supplemented by using its space for functions generating revenue to upkeep

159 Melet, Rooftop architecture, 21
160 Melet, Rooftop architecture, 22-25

the heritage building. For instance, in the past few decades it has become more common for the romantic ruins of castles and factories to be in filled with different programs. Examples would be Mill City Museum and the Moritzburg Museum. The Mill City Museum is an example of an old factory in filled, while keeping the ruins of the factory nearly intact. The Moritzburg Museum is an example of a castle, ravaged by war, now existing as a museum.

Others saw the potential for the heritage building to be reintegrated into an active role in society, such as the Tate Modern, the CaxiaForum, and the Contemporary Jewish Museum. All three of these museums occupy old industrial buildings that have long defined the area in which they are located. In each of these cases, the museums have respected the facades of the buildings and, at the same time, brought the buildings to the renewed attention of the public.

In some cases, growth to buildings was compelled by the need to express a point, examples being the Jewish Museum Berlin, the Islamic Wing at the Louvre, and the Military History Museum. Both the Jewish Museum Berlin and the Military History Museum express the devastation caused by war. The Louvre's Islamic Wing was created to provide clarity on the true nature of Islam.

Museums like the Royal Ontario Museum (ROM), Art Gallery of Ontario, Moritzburg Museum, and the Louvre grew because they needed more space, more exhibit space, research facilities, space to display large donations, etc. These museums looked toward physical growth because their location has become a part of their identity; they have occupied the same building for decades. Museums that occupy buildings designed to be museums have the most potential to be successfully preserved. Since these buildings were designed with the original purpose of being a museum, the extensions, for all intensive purposes, will be connected in a manner that requires little to no physical alteration to the interior of the existing building. Museums have recognized the value of retaining heritage buildings and the importance of sustainable practices.

Although some avant-garde additions to heritage buildings have proven to be successful, the next section Proposed But Never Realized covers the fact that even the world's greatest architects are often not able to persuade decision makers that such additions will work and will benefit the surrounding area.

Proposed but never realized

This research has discerned that, in general, preservationists avoid rooftop additions. To gain a better understanding of preservationist hurdles that need to be overcome it is helpful to study additions that were never built. This section will introduce the legal issues between preservationists and those who are trying to contend with the growing pains of a city. Preservationists often find buildings too tall, too wide, too eccentric, etc. This section will examine several examples of museums that were designed, but never built and the reasons why they were never built.

There are many projects throughout the history of additions that were proposed, but rejected for a wide range of reasons. The museums covered in this section are example of museums that could have been great, but were never built, such as the Victoria & Albert Museum extension by Daniel Libeskind; the Wadsworth Atheneum by UN Studios; Corcoran Gallery of Art, by Frank Gehry and finally, the Whitney Museum by various architects. Additionally Ara Pacis will be covered to illustrate that there are cases where these buildings have been integrated into historical communities and have been confronted with harsh disapproval.

Victoria and Albert Museum (V&A) is an example of a stillborn project suddenly revived with a generally more conventional approach. In 1996, Daniel Libeskind won a competition to design an extension to the Victoria and Albert Museum. After spending 9

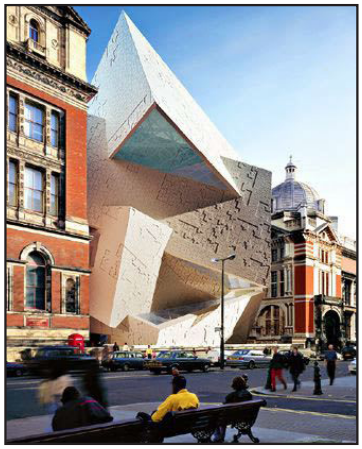


Figure: 188. Daniel Libiskind's proposal for the Victoria and Albert Museum. The won the design competition, but was never built. (Image Source: http://citycomfortsblog.typepad.com/cities/2005/05/clearly_ they_ar.html)

Figure: 189. AL_A' s Subterranean Gallery. (Image Source: http://www.karenruimy.com/blog/2012/07/12/va-exhibition-road-by-al_a/)

years developing Daniel Libeskind's addition to the V&A, entitled *Spiral,* the heritage lottery fund ended up denying its financial support and essentially brought the development to a halt in 2004. In 2009, the V&A held another design competition where a much more modest design was selected to be developed. The winning design was a subterranean addition with little more than a story of the addition visible from the street, designed by AL_A. While the design is an innovative an interesting solution to V&A's additional space, all future additions should not be expected to be tucked away from the plane of site.

Wadsworth Atheneum

The Wadsworth Atheneum is an example that illustrates how decades of stigma placed on avant-garde additions can result in completely stalling the project. Some projects have been terminated before being thoroughly explored, or after any sign of resistance. The Wadsworth Atheneum was established in 1842 and composed of 5 buildings developed over the span of 127 years is one of the oldest museums in the United States.[161] The original Wadsworth building constructed in 1842 is now only a façade because it was gutted in 1965-69. In 1906, the Colt Memorial was constructed. It, too, was gutted in the 1960s leaving only its facade. From 1910-1915, the Morgan building was constructed. The final addition to the Wadsworth Atheneum is the Avery building constructed in 1934. In February 2001, UN Studio was selected for the reunification of the Wadsworth Museum. Financial issues, changing department heads, and resistance from the preservation community have plagued the development of the Wadsworth. *The New York Times* article "Art Institutions Suffer Growing Pains" said that despite some objections to the proposed addition the plan was well backed. Although $62 million of the $82 million needed for the construction was raised, the development was halted due to the poor state of the economy. In 2010, when it looked as though the Wadsworth had given up, plans were announced for a major renovation instead of a substantial addition.

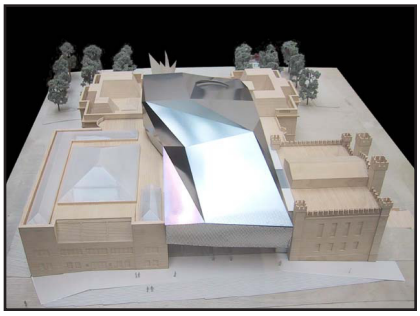


Figure: 190. Wadsworth Atheneum. (Image Source: http://www.archnewsnow.com/features/Feature55.htm)

161 Stacey Stowe, Arts Institutions Suffer Growing Pains, August 17, 2003, http://www.nytimes.com/2003/08/17/nyregion/arts-institutions-suffer-growing-pains.html?pagewanted=all&src=pm (accessed December 20, 2011).

Corcoran Gallery of Art, by Frank Gehry

Solomon R. Guggenheim Museum is located in the Upper East Side Historic District. Why was the rectangular addition to the Guggenheim approved, while the proposed additions to the Whitney were not? The addition was built in 1992, and it was not as big of an issue because it was essentially replacing a courtyard.[162]

When a building is proposed, built, and not well received, preservationists voice their objections that it never should have been built in the first place. In *The Future of the Past* preservationist Steven W. Semes briefly covers the Museum of the Ara Pacis and the outrage for the fact that it is located in the historical center of Rome. Semes makes the argument that the building "erodes the historic character of the place."[163] He even points out that some people have suggested that the building be demolished. While not an addition to a museum, it is perceived as an addition on an urban scale. The interesting thing about this example is the fact that the image selected in the book does not show a development that is

162 Byard, *The Architecture of Additions: Design and Regulation*, 142-45
163 Semes, *The Future of the Past*, 27

Figure: 191. Original Museum predominately transparent. (Image Source: http://www.skyscrapercity.com/showthread.php?t=341445)
Figure: 192. Ara Pacis Museum, this image shows two thing; the juxtaposition of the surrounding architectural styles and the fact that the new structures solid appearance obstructs the view of the water. (Image Source: http://www.nytimes.com/2006/09/25/arts/design/25paci.html)
Figure: 193. Vandalism done in protest to the large wall, that obstructs the view of the water. (Image Source: http://pruned.blogspot.com/2009/07/sewer-zeppelins-for-era-of.html)

being protested by the locals, but rather the image shows many people congregating, eating, and reading books--the image of a building being enjoyed by the users. This building was doomed to fail before construction even began, not because it was a bad design, or because the building was not properly built for the site, but rather because it was built without any affirmation of positive public opinion. For instance, there was not a design competition held, nor were there community charrettes. With no dialogue with the immediate community it is no surprise that such a strong backlash was experienced. If on the other hand the architect would have met with the community, they could have developed a design alternative for the large wall that buffers the sound of traffic. Perhaps rather than being a solid wall it could have been transparent, but do to a lack of communication $20 million will be spent to remove the large wall by 2013.[164]

The issues experienced with the Ara Pacis Museum designed by Richard Meier could have been avoided to an extent, by involving the opinions of the locals from the beginning of the design process. The reality is that not everybody will be pleased with an addition, but this does not mean that these buildings should not be built. Change should not be stopped simply because a select few people have an aversion to change.

The Whitney's Identity Crisis

Nicolai Ouroussoff's *New York Times* article, "Uptown or Down? The Whitney's Identity Crisis,", called the "Whitney's three decade long battle an identity crisis."[165] The Whitney is a clear example of the difficulties encountered during the bureaucratic process of adding an addition within a heritage district in the United States. Conflict associated with its thwarted will to grow can be contributed to a mixture of factors such as the conservative community, in which it exists, changing conservation policies, and the amount of additional space needed by the Whitney's expansive program. Since the site is located in a historic district, proposals must receive approval from the New York City Landmarks Preservation Commission before any project can be implemented. Ironically, the original museum was founded on principles of innovation and radical ideas.

164 Judith H. Dobrzynski, *At The Ara Pacis Museum, Richard Meier Bends To Much-Needed Modifications*, June 22, 2010, http://www.artsjournal.com/realcleararts/2010/06/ara_pacis_modifications.html (accessed October 22, 2012).

165 Nicolai Ouroussoff, The Whitney Museum's Identity Crisis - Architecture - New York Times, November 2, 06, http://www.nytimes.com/2006/11/02/arts/design/02whit.html?pagewanted=1 (accessed December 13, 09).

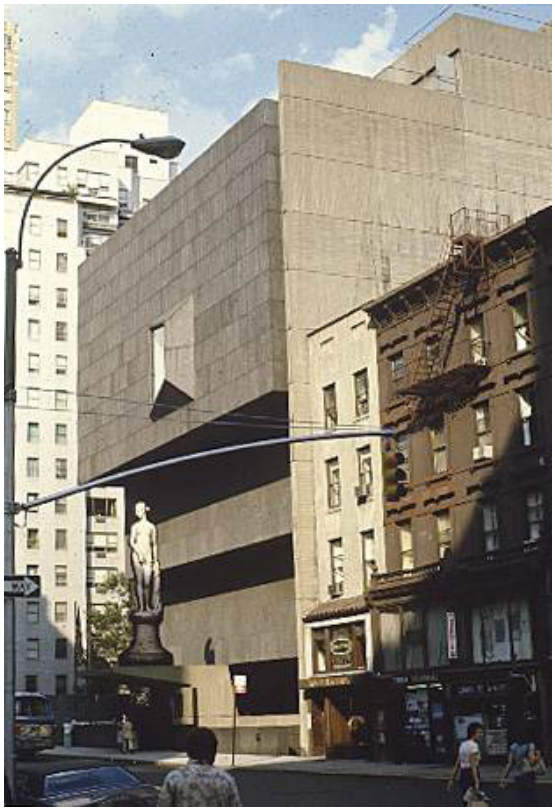


Figure: 194. The Whitney Museum. (Image Source: http://www.nyc-architecture.com/UES/UES059.htm)

These factors have created an environment that has resulted in the relocation of this Upper East Side landmark. The Whitney Museum's long history of attempting to change presents an ideal platform to apply the best practices learned from the research conducted for this dissertation (which will be covered in the proceeding sections). This design process will be strictly hypothetical, since the Whitney has already started constructing a new museum in the Meatpacking District and in 2010 sold its five neighboring brownstones to help cover the cost of the new building.[166]

The Whitney Museum should be developed because it is evident that the Whitney's existing envelope of Marcel Breuer's building and the early 20th century brownstones, just south of the Museum, is not meeting the Whitney's program needs. Proposals to enlarge the Whitney were designed by notable architects like Norman Foster, Michael Graves, Rem Koolhaas, and Renzo Piano.

Norman Foster was the first famous architect to propose an addition to the Whitney Museum--a thirty story mixed-use development. Of the six most well -known proposed additions, only this one predates the Historic District designation of the area in 1981. In 1978, Foster's design was rejected because the "museum was not interested."[167] Additionally, the design required the demolition of all of the neighboring brownstones. Every proposal that followed Norman Foster's was required to meet the standards of the 1981 designated Historic District.

166 Carol Vogel, Met Plans to Occupy the Whitney's Uptown Site, May 11, 2011, http://www.nytimes.com/2011/05/12/arts/design/the-met-to-take-over-whitneys-breuer-building.html?pagewanted=all (accessed December 05, 2011).

167 Cater B. Horsley, The Whitney Museum of American Art, http://www.thecityreview.com/ues/madison/whitney.html (accessed December 24, 2011).

Michael Graves was the first renowned architect to make three proposals to add to the Breuer building. All of the schemes were rooftop additions that integrated directly with the existing building, but demolished all of the neighboring brownstones. Two of the three proposals made major changes to the Whitney as well; demolishing the vertical set back area with the canted wall. Despite the fact that these proposals were made in 1985 and the original building was built in 1966, historians had taken a liking to the building and refused to accept any of the proposed changes. So the plans for a Graves extension, which would have added 134,000 square-feet and cost $37.5 million, were abandoned.[168]

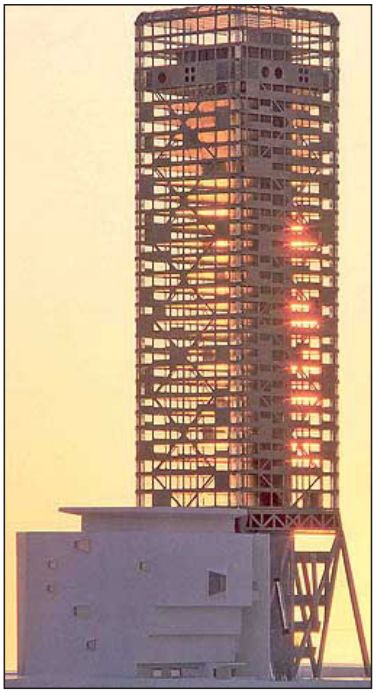


Figure: 195. The 1st proposed intervention by Norman Foster. (Image Source: http://www.hughpearman.com/vaults/whitney.html)

After the failed attempts to get one of the three proposed designs built, the Whitney grew into three of the brownstones gaining 30 percent more gallery space. The library, archives, and offices on the fifth floor of the Breuer building, were relocated to 943 Madison Avenue, 31 East 74th Street, and 33-35 East 74th Street (in 1998).[169]

After the failed attempts by both Norman Foster and Michael Graves, the Whitney learned that demolishing the brownstones had minimal prospects of being approved, thus all sequential proposed designs incorporated the brownstones. Two decades after Michael Graves, Rem Koolhaas was enlisted to design another proposal for the Whitney Museum. His solution was a stunning architectural piece that occupied the area behind the Whitney, cantilevering over the existing building. The eleven-story design would have required the demolition of a couple of the brownstones that are located just south of the Whitney.[170] The proposal by Rem Koolhaas was, by far, the least conventional, but in many ways the most potentially successful do to the introduction of a new architectural vocabulary. Koolhaas's felt that the proposed addition to the Whitney should be a "declarative architectural intervention," one that "expresses contemporary architecture as an ephemeral process

168 Vogel, Whitney Scraps Expansion Plans.
169 Ibid.
170 Ed Melet and Eric Vreedenburgh, *Rooftop architecture: Building on an Elevated Surface* (Amsterdam: NAi Publishers, 2005). 114-17

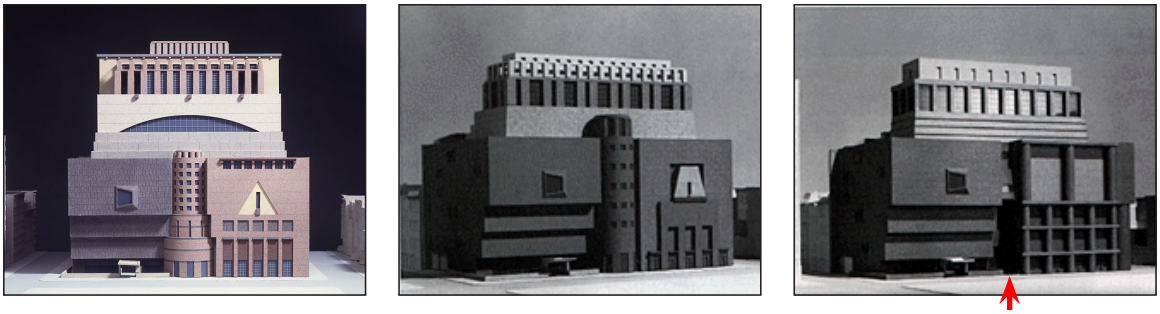


Figure: 197. Three proposed by Michael Graves (1985), in addition to demolishing the Brownstones the first two proposal demolishes the recessed portion with the canted wall (identified with the red arrow). The third proposal kept the Whitney (Image Source for the first proposal: http://www.nytimes.com/2006/11/02/arts/design/02whit.html)(Image Source for the second and the third: *The Architecture of Addition*, by Paul Spencer Byard)

more than a permanent object, a way of opening old buildings to new meaning"[171] One of the shortcomings of the design was demolition of the non-contributing buildings. Due to economic uncertainties after 9/11, Koolhaas's design was not built.

Renzo Piano's scheme was a nine story conventional rectilinear form that occupied the area behind the existing Museum and was also to be connected to the building by bridges. Amazingly after several proposals made by renowned architects, the New York City Landmarks Preservation Commission and the Upper East Side Community Board finally accepted Renzo Piano's unimposing design that blended into the surrounding urban vernacular in 2005. This scheme potentially costing more than $200 million. It is important to note that, although the community was split on the support of the Whitney expansion, of a committee of 10, 7 were in favor of the expansion as long as the design was modified to retain the contributing heritage building (941 Madison Avenue). Friends of the Upper East Side Historic District published in a summer of 2005 News in Brief stated that they were pleased with the compromise in the final design: " Friends finds this to be a winning compromise for all..." Their objective was to strike the right balance between preservation and renewal.[172] Unfortunately, Renzo Piano's extension to the Whitney would never be built, and not for being inappropriate for the site but rather the Whitney was defeated.

The Whitney Museum illustrates a misguided waste of resources. Even after calling upon the world's most renowned architects and spending millions of dollars on starchitects and permits, the Whitney was never successful in their attempts to grow. When the Piano

171 Jorge Otero-Pailos, *Restoration Redux*, February 2012, http://archrecord.construction.com/projects/Building_types_study/adaptive_reuse/2012/restoration-redux.asp (accessed February 17, 2012).

172 Friends of the Upper East Side Historic Districts, *Carnegie Hill Historic District*, http://www.friends-ues.org/wp-content/uploads/2008/02/summer-2005.pdf (accessed March 23, 2012).

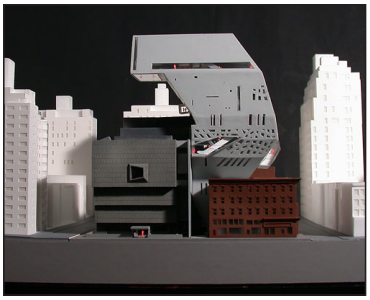


Figure: 200. Proposed by Rem Koolhaas. (Image Source: http://www.thecityreview.com/ues/madison/whitney.html)

proposal was eventually approved, the Whitney had to compromise on the required space needed for the new program. In addition to costing a lot with little return on increase of space, the museum's board recognized that the project would be fraught with delay and harangued by protests from the preservation community. Unable to realize an onsite addition, but desperate for more room, the Whitney's committee board, became resolved to a satellite museum. The Whitney went with an option that was given by the government, moving the Whitney from the Upper East Side to the Meatpacking district by 2015. The aggressive bombardment of lawsuits and protests won out and prevented any form of growth to the Upper East Side buildings.

It might be argued that the lawsuits following the approval of the last proposed addition to the Whitney museum is evidence that the community does not want the introduction of such a large addition to the Whitney and the brownstones. Rather, it is an attestation to the fact that such proposed additions are frequently met with opposition. As noted earlier the final design was approved with overwhelming consent, by all three review boards, yet was still brought to a halt because those select few realize the power that lawsuits have to delay and bankrupt a project. Even the community in majority was in

Figure: 198. The final one was proposed by Renzo Piano (approved, but was never built.) (Image Source: http://www.thecityreview.com/ues/madison/whitney.html)

Figure: 199. The approval of Renzo Piano's design was contingent on the retention of 941 Madison Avenue. (Image Source: http://graphics8.nytimes.com/images/2005/05/25/arts/25whit.650.jpg)

favor of the addition. The closest that the Whitney has ever gotten to an adaptive form of growth was the temporary use of the neighboring brownstones. In the end, the Whitney was defeated after 30 years of trying to grow; it once again became nomadic.

It should be noted that when the first extension was proposed to the Whitney, it was only 12 years old. The second proposal came about when it was 19 years old. Although the Whitney Museum is not old enough to be a registered historic building, it is located within the historic district of the Upper East Side, which is why it is encountering difficulty in further developing the site.

Lessons Learned:

This dissertation design addresses objections encountered in the past that were not addressed by past proposals. The majority of the concerns are often encountered with new developments, such as concerns about additional traffic, loss of existing view corridors, and a general aversion to change. Other concerns are:

- Height
- Alteration of the street
- Facadism
- Breaking up the continuous row of buildings
- Concern that the undulating cityscape would be drastically changed
- The demolition of non-contributing buildings

Considering past attempts to integrate the Upper East Side site of the Whitney Museum and the objections that the community has made, there is a need to approach the enhancement of the Whitney by developing a process.

Since the majority of projects that were never built are the result of publicly held design competitions, it is questionable as to whether their rejection really reflects the values of the general public. They were selected with public approval. Also, buildings in the case studies that do have successful additions are not just visited by hundreds of people annually, but by millions. Preservationists in their vehement beliefs about heritage buildings are far more vocal than the general public and more motivated to prevent additions which they feel do not adequately preserve a heritage building.

There are positives and negatives to integrating preservation strategies into zoning regulations and building code guidelines. One positive is that there are more historic buildings retained and maintained because of designated historic districts. In some cases codes and enforcing organizations have saved buildings from being demolished. One negative is that an unfortunate result of preservation codes that were designed to protect the nation's most valuable historic monuments is that they have been used as misdirected resources against the development of many heritage buildings. The money spent getting around bureaucratic hurdles and stall tactics could have been spent making development more successful and ensuring that corners were not cut. This reality typically results in mediocrity or leads to projects never being completed at all. The adaptive reuse of the Jessie Street Power Substation (now the Contemporary Jewish Museum, in San Francisco Yerba Buena Gardens) should not have taken 40 years to reinstate itself as an operational building.

The fact that these buildings persistently try to grow is evidence that they really do need to grow. There is no reason that these institutions should be put in a position where they have to compromise what they represent resolving to auxiliary choices.

While the expense of these buildings can be factored into the reasons why they have not been constructed, opposition encountered from preservationists plays the largest role inhibiting the success of the development of these buildings.

Examples of museum additions that were proposed, but never built, or that were built with a compromised design are evidence that the built environment is an evolving reality, the elements of which, like the elements in nature, are subject to drastic change and destructive pressures. Architects must be responsible and respond creatively to maintain a built environment that continues to serve the needs of a growing population and, at the same time, to inspire them. With the very act of preservation, the natural development of the built environment has been interrupted, and now it is time to restore the organic form of growth that was often undertaken before urban removal. The question is: how can the natural balance between change and retention be regained? In the next section the existing preservation standards will be looked at and the issue will be identified along with possible solutions.

Rethinking preservation guidelines

The ultimate goal of preservation, a noble effort that should be perpetuated, is to ensure the survival of heritage properties for future generations. Preservation advocates play an important role in the successful retention of heritage buildings, which may otherwise be lost. A shortsighted pursuit of preserving heritage buildings, however, has at times hindered the successful growth, reflection of changing social values, and development of futuristic buildings within historical communities, as was seen in the previous section *Proposed but Never Realized*.

In the 40 years since these standards were created, there have been major advancements in technologies and social appreciation of how new and old structures can coexist. Most of these heritage buildings are already being equipped with all of the modern conveniences. Why should this integration be limited to the conveniences of modern technologies? The introduction of new archetypes should be embraced in the same way that cathedrals like the Gloucester Cathedral was able to learn to grow, and in the same way that the Tate Modern is learning to grow. This is not saying that every building needs to have an addition added onto it every couple of decades, but rather that prospects should be investigated when additions are needed. Additions made to historic properties should be encouraged as architectural assets, rather than a crutch to the preservation of a building.

The over regulation of the future developments of an area, inadvertently creates a false sense of history, which is wrong and misdirected. The design of an addition should not be left to the discretion of a design review board with a book of acceptable color swatches. When regulating such growth, aesthetic preference should not be a factor concerning the landmarks committee. As said by Paul Spencer Byard, "The judgments must be principled, not just expressions of likes and dislikes, so that they can be arguable, predictable, and otherwise entitled."[173] If historical elements are retained, the design of the building should not have to be a reflection of the aesthetic of a review board. The desire of the select few should not overpower the desires of others.

Although aesthetic preference should not be a determining factor, there is nonetheless a need to define some form of regulation on the design. When proposing an alteration to historic buildings, the primary concern should be insuring the retention of the historical features without impeding on a building's growth. This is why there is a need to

173 Byard, *The Architecture of Additions*, 14

reevaluate preservation guidelines, and determine how an approach to the development of and addition should be addressed. Standards for the rehabilitation of historic properties should be proactive and reactive, never rigid. This section will argue that heritage properties can retain their historical integrity while allowing buildings to engage and exist within modernizing surroundings.

Considering there is such a distinctive and diverse built environment emerging in urban niches throughout the world, the standards that define what is acceptable rehabilitation, as applied to promoting the use of rooftop structures and extensions to heritage buildings, need to be updated. Updating preservation standards is critical from a social, practical, and environmental standpoint. Every built environment needs to be able to respond to a community's requirements in a manner that promotes healthy densification, which will help sustain rural areas and create a dynamic urban fabric. First, there will be a need to address the Evolving Environment that is demanding the reuse of existing buildings. Then there will be an Analysis of the Existing Preservation Guidelines, which will explore existing issues with how the preservation movement has addressed the integration of contemporary buildings with a heritage building.

Evolving Environment

Throughout the centuries one thing is irrefutable: progress must continue. There is no pinnacle to the evolution of the built environment; it must evolve. Human innovation has no cap; there will never be a point at which everybody in the world is going to put down his or her sketchpads and say, " We made it. This is the best that man can achieve." For the social and environmental needs of people will keep changing, and new problems requiring new solutions will keep arising. Thus, it is important for architects, developers, planners, and preservationists to stop and consider how this generation can best plan and use the planet's resources in preparation for the next generation. Will farmlands continue to be converted into suburban towns, or will urban infill projects flourish following precedents set by museums of the late 20th and early 21st century?

The demand for additive architecture acknowledges a social and cultural need, a need driven by a population that has nearly doubled in the past fifty years and a desire to retain undeveloped land. Many preservationists may argue that a burgeoning population is even more reason to enforce stricter criteria for the preservation of historic properties. However, arguably, such population growth represents an opportunity for urban planners,

preservationists, and architects to create an encompassing holistic built environment that reflects where the place has been and where it is going without converting farmland into urban sprawl. In the 1960s, when preservation became a national movement, there was a population of 181 million in the United States (3.039 billion globally),[174] now there is over 313 million in the United States (6.981 billion globally).[175]

Rapid population growth has strained natural resources. For example, to put conversion of land use into context, New York alone has converted 132,100 acres of agricultural land into developed areas between 1992-1997.[176] In five years an area equivalent to 100,396 football fields, 657 Kapiolani Parks (including the beach and zoo),[177] or 440 University of Hawaii Manoa campuses were developed. According to estimations by The U.S. Environmental Protection Agency (EPA), 170 million tons of material waste was produced in 2003 from demolition, construction, and renovations of buildings. "On a per building basis, demolition waste quantities are often 20 to 30 times as much as C&D materials generated during construction."[178] The act of renovation, then, is an environmentally conscious form of construction, since it does not require as much new material as a new construction and does not produce as much waste as demolition. Approximately 88 million tons of building material waste is discarded annually into 1,500 landfills.[179] To put the scale of waste diverted from landfills into perspective, a large building like Riverdale Hospital in Toronto Canada is equivalent to recycling 72 million cans of soda.[180] Conservation and renovation in the forms of preservation and additive architecture are needed in today's world.

In an ever-adapting world and increasing strain on natural resources, preservation and an additive form of growth have an unprecedented codependency globally. It is critical for the preservationist to approach additive architecture objectively, without the preconceived notion that additions should only be employed, when all other alternatives

174 www.worldmapper.org
175 www.census .gov/main/www/popclock.html
176 Farmland Information Center, *New York Statistics Sheet*, http://www.farmlandinfo.org/agricultural_statistics/index.cfm?function=statistics_view&stateID=NY (accessed November 1, 2009).
177 Burl Burlingame, *Growth spurt*, August 11, 2000, http://archives.starbulletin.com/2000/08/11/features/story1.html (accessed November 1, 2009).
178 U.S. Environmental Protection Agency. *Building-Related Construction and Demolition Materials Amounts.* 2009. http://www.epa.gov/waste/conserve/rrr/imr/cdm/pubs/cd-meas.pdf (accessed November 11, 2009).
179 Ibid.
180 Hume, Christopher. Is a little history worse than none? November 30, 2008. http://www.thestar.com/News/Ideas/article/546013 (accessed October 20, 2010).

have been exhausted. Preservationists should be encouraged to invest their energy into ensuring that interventions made to historical buildings are successful. Currently, too much of their energy seems to be invested in preventing additions to heritage buildings, rather than determining the best solution for the buildings successful retention. The collaboration and cooperation of a team ensure a better outcome for a completed intervention. In any case, it is, certainly, far more productive to take an objective approach to heritage growth than an emotional one.

Analysis of the Existing Preservation Guidelines

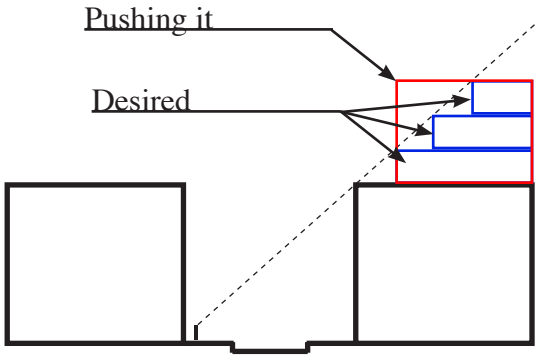
Additive Architecture presents a problem to conventional preservation practices. Though the notion that historic preservation guidelines need to be updated sounds counter intuitive, it is, nonetheless, true. Preservation organizations were created to preserve historical properties for a social and cultural purpose, not simply for the sake of preservation. Public needs should be reflected in an update of preservation guidelines. In reality, all historical properties exist in a highly turbulent environment, where technologies, social norms, and the environment are constantly changing (which as noted earlier is why preservation started in the first place). Preservation has to evolve along with this constantly evolving environment. Preservation organizations are called on to explore all means of preserving a building. In the end, the success of preservation is heavily reliant on the public and their use of the building. While few deny the need for buildings to grow to suit the programmatic requirements of the users it is highly debatable on how they should grow.

Attempts to redefine preservation practices are not unprecedented; there have been many movements to revise preservation guidelines, most of which involve fundamental changes in ideologies.

The main detriment to existing guidelines is lack of clarity, which is caused by architectural advances and social changes not taken into account since the creation of the guidelines in 1969. Current guidelines are inadequate for either side of the argument.

Though the argument is often made that the simple designation of a historic building does not restrict the future growth of the building, there are restrictions on the expectation of changes, which have been identified in Brief 14. Brief 14, from the National Park Service, addresses the desired approach to incorporating an addition to heritage buildings, is the primary reference that needs to be re-addressed.

Figure: 201. This diagram illustrates the desired integration of Rooftop additions to heritage buildings, preferable the addition should not be seen.



Additionally, all of the examples provided in this brief straddle the line of being facsimiles of their original building. While Brief 14 covers how a rooftop addition should be approached, a rooftop addition is not recommended. In fact, when looking at the suggested approach, it becomes evident that rooftop additions are allowed only as long as you cannot see them. It has also become generally accepted that additions should be located behind the heritage building as not to obstruct any historical assets, or otherwise obscure the historical features of them. Unless the addition is a small single family home or a small office, few programs can build additions while keeping the development financially feasible.

In describing how and when additions are appropriate, this brief sticks to the notion that additions are only an option; after all other alternatives have been exhausted. This stance is understandable, since preservationists desire to retain historical communities. Historical districts (communities) should not, however, be treated like movie sets for a period film. These are growing and evolving communities that reflect their citizens, not an idealized nostalgic memory of a period. This notion that additions made to heritage buildings should be subservient to the existing buildings, as promoted by the National Park Services, is dated. Additions should not be seen as simply a temporary means to an end. Buildings need to be designed for the long run, to be assertive, and to express a point of view.[181]

The Secretary of the Interior's Standards (SIS) is broken down into four treatment approaches: preserving, rehabilitating, restoring, and reconstructing. For the purpose of this study, only rehabilitating guidelines will be reviewed in-depth. As defined by the National Park Service, Rehabilitation is an "act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or

181 Grimmer, Anne E., and Kay D. Weeks. 14 Preservation Briefs: New Exterior Additions to Historic Buildings: Preservation Concerns. August 2010. http://www.nps.gov/hps/tps/briefs/brief14.pdf (accessed August 11, 2011).

features which convey its historical, cultural, or architectural values."[182] In particular the 4th, 9th, and 10th guidelines, are in question. The irony is that the SIS can find value in changes made to buildings as stated in the forth guideline:

> 4. Changes to a property that have acquired historic significance in their own right will be retained and preserved. SIS[183]

This guideline is curious because it acknowledges the late 19th century, principle of "anti-scrape" promoted by John Ruskin and William Morris, but in Preservation Brief 14 additions are devalued. It would appear that there is only value in an addition if it was made over fifty years ago. The Secretary of the Interior's Standards does not promote new additions or extensions as being formidable architectural assets, rather simply utilitarian add-ons needed to make the preservation of historic buildings a feasible project. Currently, preservation guidelines (like those endorse in Preservation Brief 14) promote mediocrity for additions to historic buildings, when they should be promoting the exceptionalism of architecture. Most preservation organizations ascribe to the principle that additions should be subservient or a modernized facsimile of the original building. Promoting such growth encourages complacency, and in the long run, a lack of identity. Examples like the Moritzburg Museum illustrate how older buildings were often at liberty to grow in an eclectic fashion that was not always bound by the design principles of the past.

It is the 9th SIS guideline that is often used as a tool to dismiss the appropriateness of buildings like the ROM, AGO, CJM, and other such additions. The 9th guideline states:

> 9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment. SIS[184]

In many cases it is difficult to adhere to the "… not destroy historic material, features, and spatial relationships that characterize the property." The wording of this guideline makes it virtually impossible to truly meet the spatial requirement; even the most modest intervention will result in the loss of historical material. It is the second sentence that creates the contention: Any insistence on the strict maintaining of "spatial relationships" is superfluous; being that the addition of anything will interrupt the spatial relationship

182 Grimmer, 14 Preservation Briefs: New Exterior Additions to Historic Buildings: Preservation Concerns.
183 National Park Service, *Standards for Rehabilitation*, http://www.nps.gov/hps/tps/standguide/rehab/rehab_standards.htm (accessed April 06, 2012).
184 National Park Service, *Standards for Rehabilitation*,

of a heritage building. When an addition is needed, it means that there will be a need to integrate additional circulation as well as the physical integration of the addition itself, thus substantial changes will occur. When preservation was young, the additions made to historical buildings were modest. An example of this type is Yale University Art Gallery, with its seemingly simple exterior that makes no real effort to assert itself. When looking at the building head on, the building is little more than a large wall. Essentially, this addition is the same color as the extension, and the existing buildings are comparable. It is only after turning the corner, that the new extension presents itself, with a sliver of a glass facade articulated by black mulleins where the entrance to the gallery is located. The addition to the Yale University Art Gallery is the quintessential example of what an addition to a historic building should look like according to the Secretary of Interior Standards (SIS). While the Yale University Art Gallery is a success in its own right, buildings like this need not be perpetuated time and time again, reserving all innovations for the interior of the building.

An approach more frequently observed is that architects are no longer acting as though historical loss will not occur and are developing additions that are designed with the intent to last. Buildings such as Dresden Military History Museum have set the precedence for additions to alter the existing context while still retaining the identity of the existing building. In Dresden Military History Daniel Libeskind cut a wedge right through a 19th century building, creating a new experience. For the Caixaforum to meet their spatial needs, they removed the roof of the building, which completely changed the spatial relationship of the building with the surrounding context. Examples such as these create conundrums as to what is or is not appropriate when it comes to additions. Should additions to buildings such as these never be undertaken? According to the SIS, it really should not and likely would not be undertaken in the United States. However in reality major alteration are needed to meet a new project and a building cannot sit around for ever waiting for a new program that is appropriate for the existing spatial layout.

Preservation principles like the Venice Charter state that a historic monument cannot be separated from it surrounding context, also stated in the SIS. The principal teaching of Gustavo Giovannoni stressed the significance of the surrounding context and the fact that a building alone does not define its success. Rather it is a balance of the urbanistic values of a place, thus addressing an intervention should not be treated as though the heritage building is an artifact.[185] The real problem is that heritage buildings have become

185 Semes, *The Future of the Past*, 125-59 and 165

too revered, that are often treated as though they are fragile artifact that will crumble under the presser of change. The most relevant question is whether or not the building has been appropriately integrated with its surroundings. Arguably, no matter what changes occur to the surrounding context, the building will always be linked to its surroundings. As the surroundings change, buildings and their place develop a new significance and a new relationship. Even when the building is relocated, it will take up root and become a part of its surroundings.

While this guideline does state that the new addition should "be differentiated from the old," it stipulates that the new should be "compatible" with all of the characterizing features of the building. This word "compatible" is interpreted as neutral. To some that means an updated version of the original building. Although preservation guidelines explicitly say that extensions to historic buildings must be modern, this notion of contemporary or modern is under contention. Many preservationists consider the process of being compatible with an existing building a matter of simplifying the features on the existing building, following the roofline or the parapet, lining up the window, or matching the color. The changes in time cannot be enlivened if additions are only seen as old buildings with a modern twist. Compatibility can be found in the juxtaposition of design and materiality, it is just not as easily explained, for they are often intangible and inferred. It should be expected that an addition be new and unfamiliar because they represent change. Changes that are illustrated in the case studies covered in the following section are examples that represent variation and the successful incorporation of avant-garde additions. Despite the fact that the argument is often made that buildings should be timeless, avant-garde buildings should still be pursued; for they are inspired by a moment in history that is worth being experienced and documented. When viewing examples such as the Louvre's Pyramid, which has increased visits to the Louvre, since the Pyramid's opening in 1989, inspiration wins out.

In the 1990s, a flurry of additions were made to heritage buildings, most of which employed the use of glass and steel curtain wall systems, mainly because it was realized that these architectural forms could be easily integrated with most heritage buildings. There was a transition from facsimile additions to glass and steel additions. Often these innovations are not found in what materials are used, but rather it is the application of the material that has changed. It was believed that the translucent qualities of the building would create minimal impact on the existing fabric. However, it quickly became evident that, while composed of

transparent material, these altered buildings still made an impact on the existing fabric.[186] Thus, there has been, and should be, a movement towards embracing these changes, rather than trying to suggest that the changes will not impact the spatial relationship of the existing urban fabric.

It should be noted that it is good practice to identify the significant elements of a building that needs to be retained to ensure the preservation of a heritage building. This is not proposing that a building should be butchered leaving only the significant elements, like the murals and decorative moldings. Rather it is a call to identify the important historical elements that will help architects, owners, and preservationists determine the best approach to creating an aesthetically compelling addition without threatening the integrity of the existing building.

The final and most constraining expectation of and addition is the 10th guideline, for it implores that and addition be designed in a removable manor. The removability of additions is also promoted in heritage guidelines like the Venice Charter. The 10th standard for the rehabilitation of heritage buildings states that:

> 10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired. SIS[187]

While in many cases building an addition that could later be removed is a desirable step taken to integrating an addition to a historical building, it is not always realistic. In reality these buildings will likely never be removed, thus it is more reasonable to promote that the connection of the new building make as little physical impositions as possible (when the building is of historical significance). However, in the event that the 10th guideline is met, there should be no reason to deny the addition beyond concerns that may involve the health safety and welfare of the public. Being that the addition will be designed as removable at the wish/desires of the owner.

For instance, if the intent of an addition is to be integrated in a removable manner, it seems superfluous to deny such additions for a number of reasons. Additions:

1. Provide the covered features of the existing heritage building, protection from the elements.

186 Newhouse, Towards A New Museum, 109
187 National Park Service, *Standards for Rehabilitation*.

2. Enable patrons to experience the heritage building and its architectural features, that were once only seen up close by window washers and restorers, in a different manner.

3. Perpetuate the tradition of physical growth of heritage buildings.

The variation of these inspired buildings will mitigate themselves with the architectural aesthetic of the building owner and the community in which the building exists. There will still be communities where such growth will not occur by the desire of the people within the community. But, surely the rights of the community should not completely omit the rights of the individual, being that the aesthetic of a community is not a matter of health, safety, and welfare. All the preservation community needs to do is to identify a preferred means of how the extension should be integrated with heritage buildings.

The expectations of the SIS are outdated and have created an environment where it is difficult to develop buildings that are truly reflective of the culture and technologies of a place. A concern for this form of architectural growth is the fine delineation between the haphazard placement of these structures and the existence of stringent rules preventing the possibility of them. Efforts that are spent on overcoming the bureaucratic and legal blockades could be spent developing a stronger design that insures the integrity of the existing buildings is retained and the addition is well designed.

It is no longer adequate to suggest that an addition should be hidden behind an existing building or tucked away from the line of sight (as Preservation Brief 14 suggest as a desired approached to integrating an addition). The interventions of additions should always be considered on a case-by-case basis; however, there are a few guidelines that should be abided by before irrevocable actions are taken. As with all architectural projects, determining what is appropriate depends on a number of factors. An addition to any building should improve its existing condition. Though many preservationists see this form of growth as a loss, it is not rational or reasonable to expect property owners to maintain property just as it is.

The final design should not be based on a book of design guidelines, written thirty years ago. When re-purposing the way in which additions should be perceived it would be irresponsible to arbitrarily create criteria for the appropriateness of an addition. Beyond ensuring the health, safety, and welfare of people there should be no limitations. Building codes are restrictive enough, so there is not a need to define additional restrictions.

Concerning the future of Historic Preservation, the government needs to act as a median and nothing more. There are property owners who enjoy heritage buildings just as they are, and who are willing to put easements on their properties. While there are other owners who do not care about retaining heritage properties, in which case, people who are interested in maintaining the buildings often have the opportunity to purchase the property.

Thus rather than producing a new set of guidelines, the established guidelines should be refined to allow for more architectural variation in what constitutes an acceptable addition. The design developed for each building should be based on a conversation with the community. This process is proposing that the end result of the design be based on the needs of the users and a compromise on the aesthetic expectation of the community and the users.

To illustrate this concept hypothetical development A, B, and C will be used to demonstrate that communities should not be limited to the same set of parameters. While the community by and large is constant, the immediate community and the development users change. Thus while developments A and B are in close proximity, the result of the building should be drastically different. The input of the immediate community should out weigh the input of the community as a whole and the needs of the users should out weight the inputs of the immediate community within reason. The end product will be a product of the compromise and negotiation, but the compromise should never impair the usefulness of the building. Within reason the needs of the building should not be compromised based on the aesthetic expectations of the community. The result of this process does not have to appeal to everybody, but it should appeal to the users of the development, stakeholder, and the community in general. There should not be an imaginary line stating that buildings must grow only in a certain way, within the limits of a district.

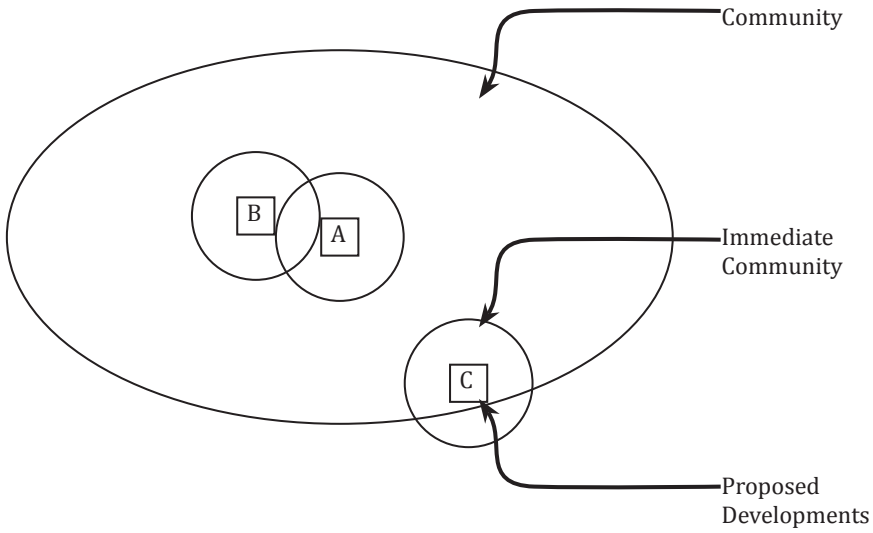
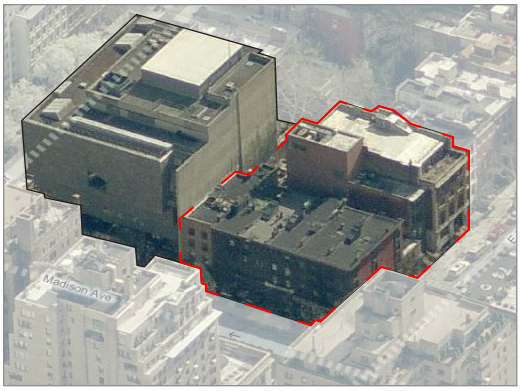


Figure: 202. Illustration using hypothetical developments A, B, and C to show that not every development will share the same values even though they are located within the same district. Thus, it is critical that the design of the development be influenced by the users, then the immediate community, and finally the community at a large. However this is not to say that there will not be exceptions.

Development "A" is located at the core of the community.

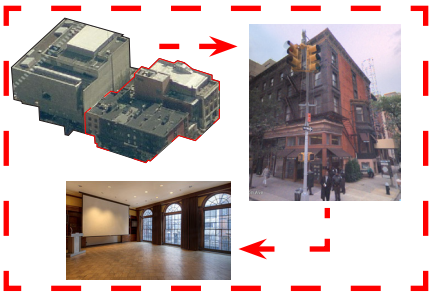
Development "B" is still located within the main community, but is influences by a different immediate community.

Development "C" is located within the main community, but a good portion of the immediate community is located out side of the defined limits of the community.



Step 1: Identify Site

- In this step it is simply a matter of knowing the site and the general information about the site.

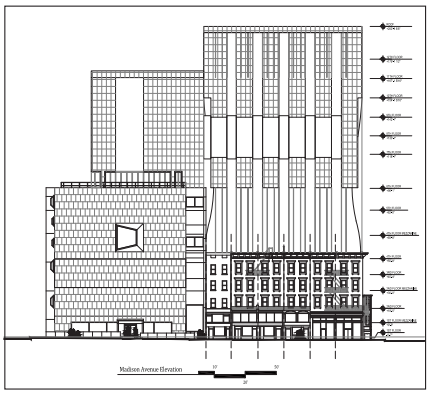


Step 2: Assess the existing condition

- In this step the history and significance of architectural feature found on the site has to be thoroughly investigated.

Step 3:Develop a Value System

- In this step the information learned while assess the existing conditions will be shared with the community and a value system will be developed.



Step 4: Develop Design

- In this step the value system ascertained from the community and the programs needs while inform the design development.

Step 5: repeat steps 2-4

Figure: 203. Illustration of the proposed as to how an addition should be integrated into a heritage building.

Developing a process

The entire premise of this dissertation is to necessitate the reuse of buildings (predominantly in dense urban settings), while promoting the value of instilling a new architectural vocabulary in the existing urban fabric. In this section the objective is to identify how an addition to a heritage building can be designed in a framework that allows for a variety of architectural solutions for the development of an addition without creating a facsimile. The flexibility of this approach enables designers to develop a design according to the values of the stakeholders while ensuring that the addition is a representation of the growing and evolving needs of the community and a projection into the future of a place.

While change is still occurring in every built environment, in some places the changes are defined by an out dated set of criteria, that by design does not change with time and the people. The static nature of these guidelines often omits the influence of entire generations, leaving a skewed representation of a place's identity. The city should be read in striations not as a homogeneous object that only represents a select few periods in time, the history of a place should not be predefined for an entire district.

The beauty of design is that it is highly reflective of the designer, with the input of different invested parties and analytic approaches, which results in often profoundly unique designs that contribute to a diverse built environment. This is made evident with the drastically different designs developed by Norman Foster, Michael Graves, Rem Koolhaas, and Renzo Piano for the expansion of the Whitney.

To accomplish a desired level of architectural variation in the built environment there is a need to reevaluate the current standards, which are static. The process that I outline is based on the input of stakeholders, making the entire approach more dynamic, but also specific to a project.

By developing a process based on a series of prescribed approaches to integrating an addition to a heritage building (opposed to a detailed rigid se t of guidelines), a greater variation in possibilities of the final product will be promoted for each project. There are thousands variations which an architect and the stakeholders can explore to develop an addition. The future of a district/city/town is not predictable because a place is composed of the expectations, needs, and values of the users. For example New York is composed of a million plus people, meaning there could be a million plus possible variations of a built

environment that reflects the diversity of those that occupy it. It really cannot be stressed enough that every design decision is contextual, every step suggested is just a point of reference that should be deviated from when determined to be appropriate. This process encourages the diversity often found in the design process, but has been lost within historic districts which is a result of over regulation and the outspoken interest of the few.

The process of determining how to approach the integration of a new addition to an existing building is a journey. Evident through this research project is that a process can be as unique as each building. Findings along the way to be appropriate for each project will be different. When looking into creating an intervention to a heritage building, and allowing for differences in every case, this research has identified a five step process to follow:

Step 1 Understanding the site, building, and proposed use.

Step 2 Assessing the existing building.

Step 3 Developing a value system.

Step 4 Developing a design.

Step 5 Repeating steps 2-5.

This process will be briefly explained before showing how the steps can be applied in a design proposal to the Whitney Museum.

Step 1: Understanding the Site, Building, and Proposed Use

The process for approaching the design of any building starts with the site. In the case of a site with an existing building, this would mean researching existing issues, and concerns. Additionally, zoning concerns and other such pertinent information about the site will be necessary. Having a basic understanding of existing parameters will allow an architect to identify design problem early, and have a basic appreciation of the opportunities and constraints the site has. With this basic knowledge, an architect will need to look more closely into the history of the site and the existing buildings in Step 2.

Step 2: Assessing the Existing Building

In this step, tools like Preservation Brief 17 can be used to help identify the dominating features of buildings to be retained. It is suggested that in the analysis of existing buildings, diagrams that identify the existing features be created to show clearly

how buildings compare and contrast. This step identifies features that make the building significant and how it came to be, features might not be limited to physical appeal. As mentioned in Preservation Issues, the importance of a building can be based on several factors some of which might have nothing to do with the architecture. Understanding the history of buildings is critical whenever considering a major alteration to a heritage building.

Once the history of the building is taken into context, an analysis of the building's relationships and design element can be conducted. Designs can be evaluated using analytic diagrams as covered in books such as *Precedents in Architecture: Analytic Diagrams, Formative Ideas, and Partis,* written by Roger Clark and Michael Pause. *Precedents in Architecture* identifies a dozen analytic diagrams that define the design of buildings, diagrams such as:[188]

188 Roger H. Clark and Michael Pause, *Precedents in Architecture: Analytic Diagrams, Formative Ideas, and Parti*, 3rd (Hoboken, New Jersey: John Wiley and Sons, Inc., 2005).

1.	Structure	7.	Repetitive to Unique
2.	Natural Lighting	8.	Unit to whole
3.	Massing	9.	Symmetry and Balance
4.	Plan to Section	10.	Additive and subtractive
5.	Geometry	11.	Hierarchy
6.	Circulation to use	12.	Parti

Even Roger H. Clark and Michael Pause do not address all possible elements that can be analyzed when looking at an existing building. Some relationships that they do not cover are the fenestration, the materiality, and even the relationship between the exterior and the interior. In some cases, these elements are addressed indirectly, but in recent years the discussion of the materiality has moved to the forefront of architecture because of newly available resources. This ties back to the fact that there will always be more than one approach and outcome to any design of a building. When approaching the analysis of any building it is important to note that it is just as important to understand what the building was conceived to be, as it is to understand what it has become.

This analysis is conducted to identify elements that make a building what it is understood to be, by the architect and the stockholders. By evaluating the form, proportioning system, and other such factors an architect will be better able to develop a relationship between the buildings. In this step, the definition of historic features and historic significance will inform the value system developed in Step 3. This step will aid in the design development as well as communicating with the invested parties.

Step 3: Developing a Value System

This step envisions developing a hierarchy of significance, to determine elements that should be retained. With the information attained in the analysis of the existing condition gathered in Step 2, a priority of significance can be developed based on a mediated value system extracted from stakeholders. Such a value system can be defined through community outreach programs, where charrettes can be conducted along with surveys, and design competitions. The dialogue with the stakeholders should cover the expectations of the addition, the identification of the predominant drivers from the existing buildings being added to. It can also be beneficial to share precedence of other buildings that stakeholders are not familiar with, to ensure that they are well informed.

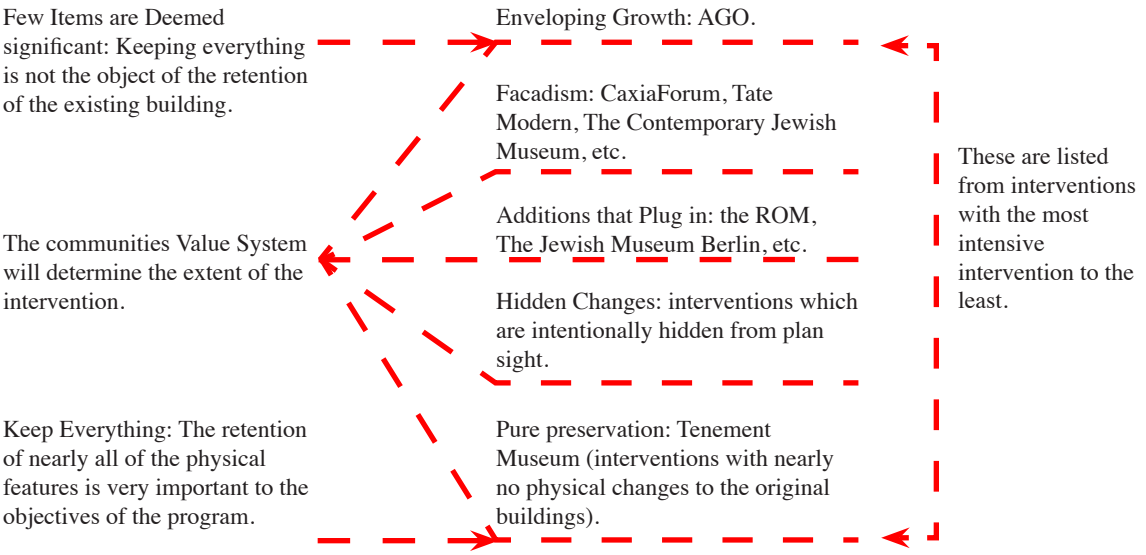


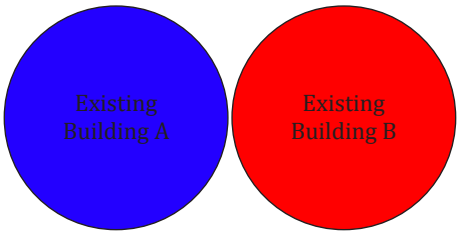
Figure: 205. This diagram illustrates the various levels of value systems that can be arrived at depending on the salient factors to the community, one approach is not better than the other.

As ruled in the Penn Central Transportation Company versus New York (covered in Preservation Issues), the public is entitled to control their environment. However on the very same note the users of a building are also entitled to create their own environment, thus there has to be a compromise. This step is based on developing a value system that can be representative of the users and the majority of the community, by being derived through a collaborative process founded on compromise. Not the kind of compromise where everybody loses, but rather the kind of compromise that can result in a different solution that has the potential to exceed the expectations of many. For this step to be successful it is critical to share the information gathered from the analysis, and address the concerns of the invested parties.

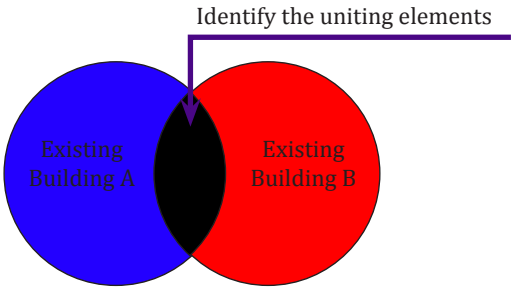
An integral part of the value system is determining how the building is important to the community and the users. Discuss the impact and the amount of change the addition should provide to the community. Understanding the objective of preserving the historic building is important because the assessment process will inform what should be kept to ensure the integrity of the building versus what can be changed to meet the needs of a new program. For example, the value system of a development might be structured on three levels of importance; critical, significant but modifiable, and not critical. To develop a structure to identifying various values of significance there are a few questions to consider: Is the intent to retain the sole motivation? Is the intent to maintain only elements of the building visible from the street? What is the role of the existing buildings? What is the role of the addition? The objective here is to determine how much the existing building will influence the design of the addition; a simplified way of illustrating this point is visualizing the significances according to the size of its importance. This point is illustrated on the following page, using circles composed of primary colors to represent the existing buildings. The black represents the shared influence, through the overlapping of each component. The overlapping of the circles represents how the associated value of the existing building will be integrated with the addition. Which is depicted in three levels of value on where the first highlights the importance of the existing buildings, the second is where the new and the old are equally important, and third the new is more important than the existing. Developing a value system will help an architect navigate the design process.

This prioritization of values is a critical step as it is likely that some historic features will be altered by the proposed intervention due to spatial requirements and the very nature of an intervention. It is critical that the architect be aware of and assess effectively the community's concerns, and knows up front the elements that are precious. Essentially this step is comparable to a filtering system; once the value system is distilled, architects,

Underlining design concept

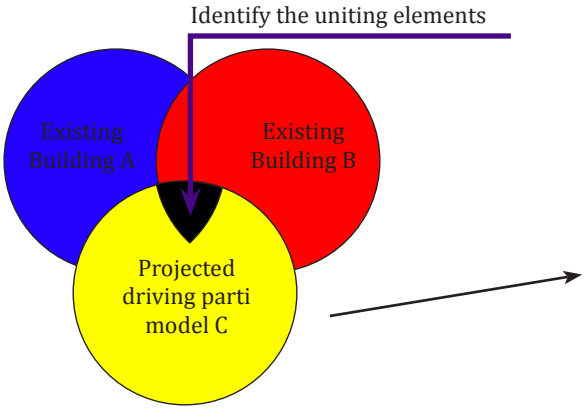


Identify and develop a relationship



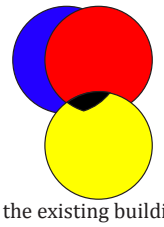
Develop a new language to interject into the existing condition

- The architect
- Stakeholder
- -Expectation
- -Projection for the future of the place
- Embraceable by the community, Somewhat in touch with the past, but more a view port into the future

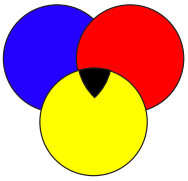


How to determine what the relationship between the existing building and the addition will be.

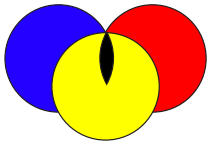
The ratio of each of these components are based of the values system of the parti with invested interest and the object of the additions.



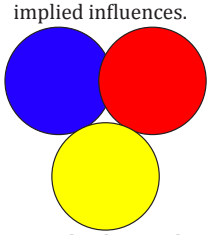
One of the existing buildings can dominate the influence of the design of the addition.
In the case above existing building (B) will contribute more of tits features that building (A).



Each of the existing buildings and the new design features can play an equal role in the development of a building.



The new design will dominate the over arching design influence of the addition, with little to no visual or implied influences.



Developing and indirect relationship through the new program. This approve was taken by many of the case studies.

Figure: 206. Notice that the yellow is kept separated from the existing building “A” and “B” because it is stressing the point that the addition still needs to bring something new the built environment. Something other than simply being new. It is important to note that when introducing a new element to the over all composition of the development it is determined based on the involved parties and their expectation of the new addition.

planners, and community leaders can use it to develop a justifiable intervention to the heritage building. The architect with the stakeholders needs to cull that list down to the top 3-5 (more if needed) salient architectural drivers (criteria) to be used as a toolbox in developing a reflection of the existing building in the addition.

Step 4: Developing a Design

Once a value system is in place for the project, the design of the intervention can be extrapolated based on what the community, the program, and styles of the period dictate. Design Development is a design based on the values of the users, then the community. However, the building should respond to the needs of the immediate community primarily. If a building does not meet the needs of the current users, it will become obsolete that much quicker. The objective in the end is to design a building that meets the needs of the user, than address the desires of the community, and finally design a building to with stand the test of time.

The diagrams made in Step 2 will help illustrate the underlining design principles found in the existing buildings that can be used to inform the design of the addition. That will not solely be based on a style of architecture, but rather the information attained from the previous three steps, along with the interjection of a new architectural vocabulary that draws reference from either the current time, place, or program (other variables may apply).

To ensure a level of constancy on what is expected of an addition, there are a few criteria that must be integrated into the final product, when applying this process. The criteria are identified as the constant elements, which should be found in every addition.

There are three constants that will occur by following this approach:

1. There should be an introductory vocabulary (which serves the purpose of representing the current values and a projected future for the architecture of a place).
2. There should be a link grounding the addition to the building, place, or even new program.
3. A perpetuation of the built environment, meaning as much of the existing fabric should be retained as possible.

These constant elements are expected of even the most conservative addition. The point here is to ensure an architectural and intellectual growth in the built environment that can be read by future generations. Given the possible variation on what the addition could be, several means of addressing a design problem will be illustrated when covering the approach taken for developing an addition to the Whitney Museum in the design section.

During steps 1-4, additional information on the site might be discovered, which is why Step 5 is needed.

Step 5: Repeat

While developing the design, information regarding the site can reveal new thoughts on the significance of existing features. Throughout the development of a design, factors can be continually examined. New information, not available in the initial assessment, can be uncovered during other phases. Thus there is a need to re-approach all of the steps in a tighter and more concise way.

Although the development of a building is not a linear process, eventually the building will be "done," and the process completed. This five-step process is a tool adaptable to changeable situations, sites, and projects.

Step 1: Understanding the Site, the Building, and the Proposed Use.

With the process defined, a design intervention to the Whitney Brownstones will be used to qualify this process. The Upper East Side Historic District protects five of the six Brownstones that make up the proposed site from demolition and from previously proposed interventions to the Whitney Museum. The museum acquired its neighboring Brownstones in the 1960s, 70s, and 80s for the purpose of future growth. The argument that the Whitney Museum, a revered institution and cultural center, should be allowed to grow makes the Whitney a perfect candidate to explore the effectiveness of the proposed process.[189]

The site is located within the Upper East Side Historic District of Manhattan designated on May 19, 1981. It is one of nearly 50 established historic districts on the island of Manhattan. Historic districts make up nearly 16% of the island and are still growing.[190] Currently, the district spans from East 50th Street to East 80th Street (north to south); and from 5th Avenue almost to 3rd Avenue (west to east). As discussed in the chapter covering Preservation issues, on March 23, 2010, the Upper East Side Historic District expanded

189 Horsley, *The Whitney Museum of American Art*.
190 Glaeser, Preservation Follies.

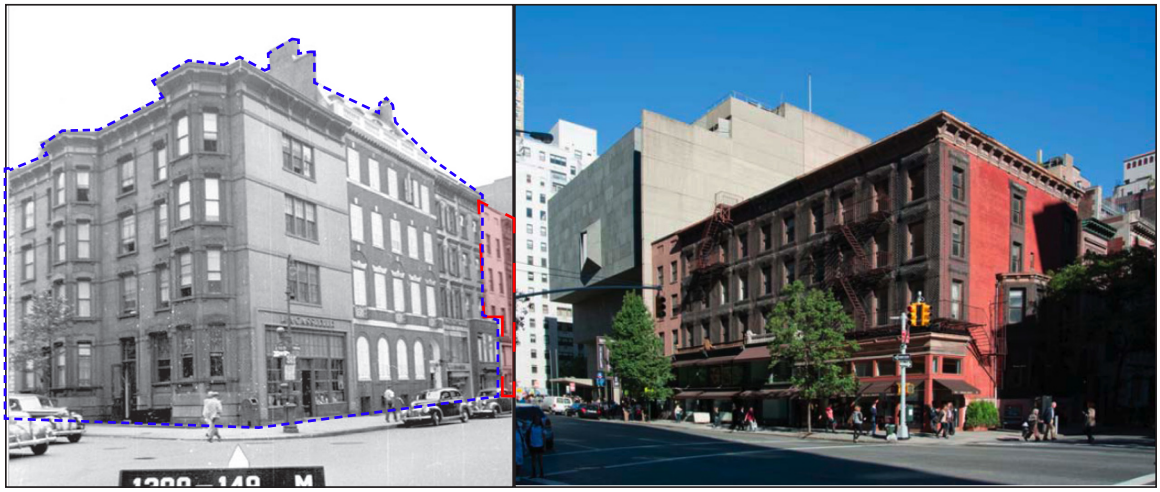


Figure: 207. "The southeast corner of Madison and 75th 1940; the buildings had been razed when the museum bought it." The blue outline identifies the 6 earlier residences that the Breuer building replaced. The area outlined in red identifies 943 and part of 941, the start of the brownstones that still exist. (Image Source: http://www.nytimes.com/2010/11/14/realestate/14Scapes.html)

Figure: 208. The existing Brownstones and the Whitney Museum. (Image Source: http://www.cityrealty.com/nyc/real-estate/carters-view/daniel-e-straus-buys-8-low-rise-buildings-whitney-museum-american-art/35404)

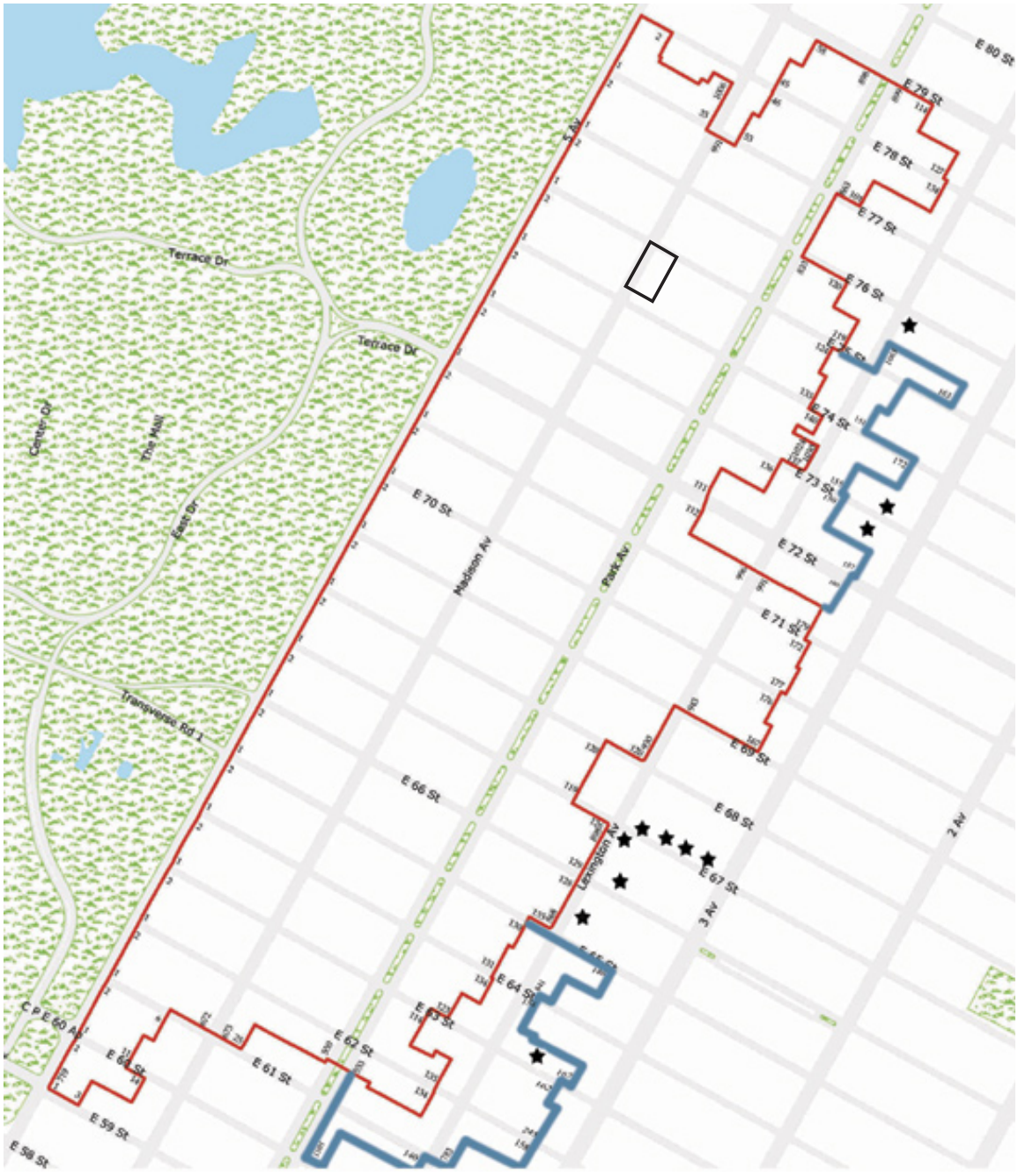


Figure: 209. The Upper East Side Historic Districts, recently expanded in 2010. (Image Source: http://gis.nyc.gov/doitt/nycitymap/template?applicationName=ZOLA)

Dianna Wallis | ARCH 588 | 12/07/12

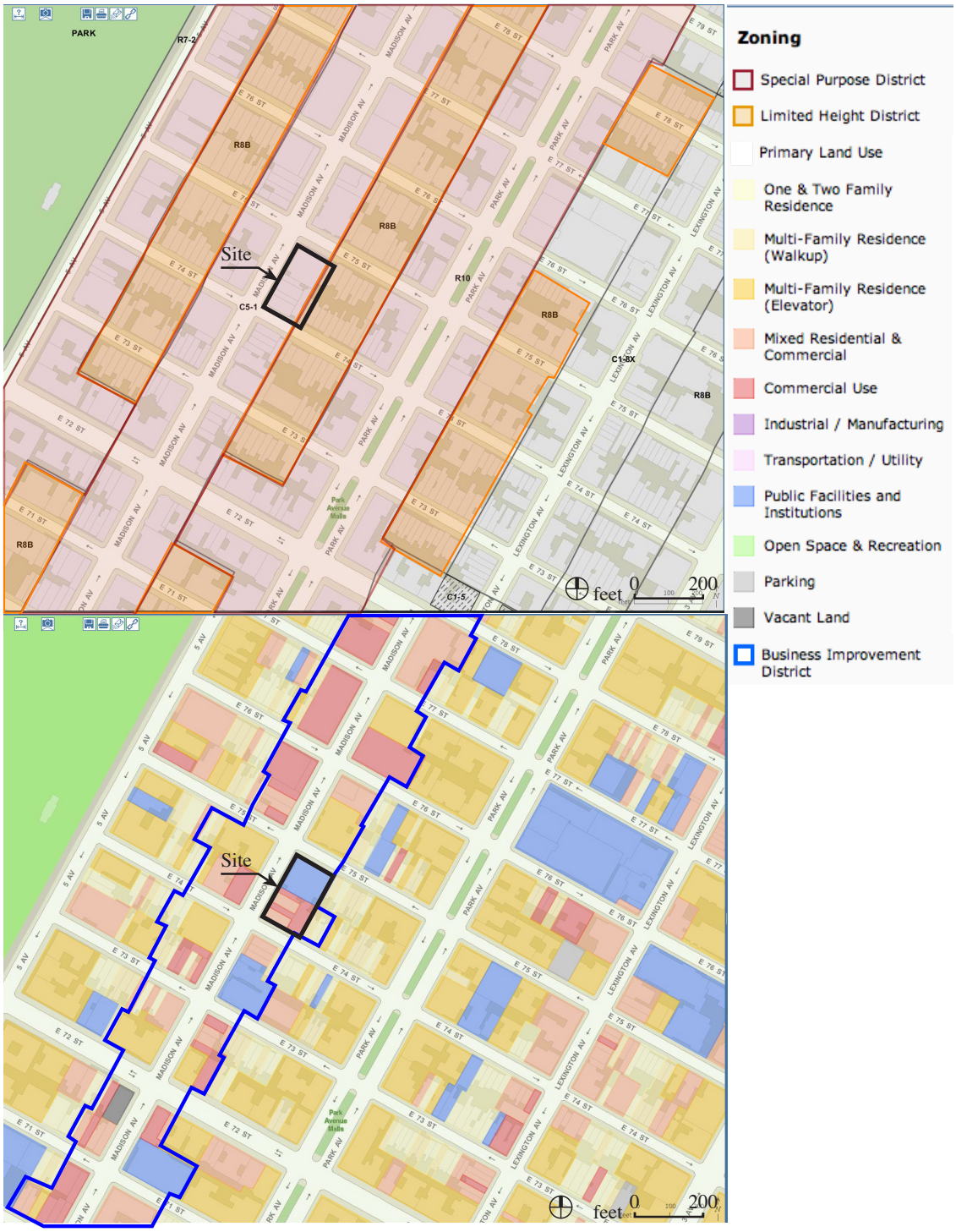


Figure: 210. This zoning map identifies that the area is zoned as Commercial District (c5-1) and Residential District. (r8b lh-1a(Limited Height District))

Figure: 211. Identifies the land use of the area and the blue outline identifies the Business Improvement District. (Figure 256 and 257's Source: http://gis.nyc.gov/doitt/nycitymap/template?applicationName=ZOLA)

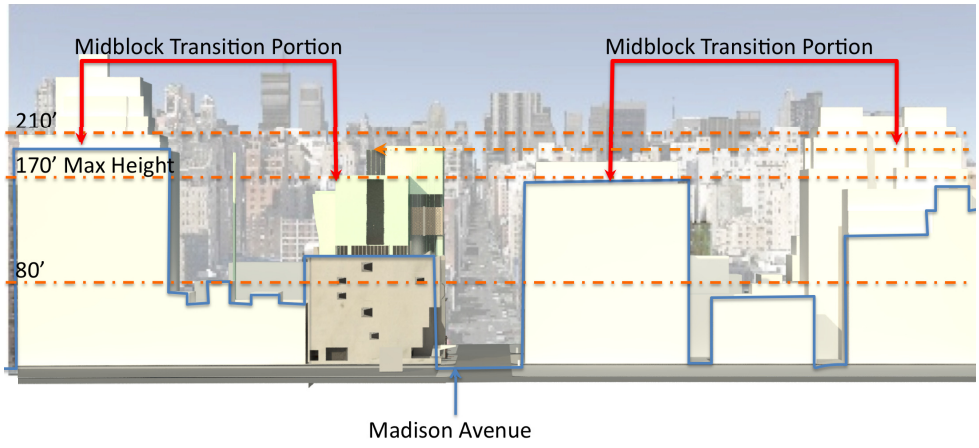
adding 197 buildings. Of the newly expanded historic district, 163 of the buildings were classified as being contributing and 34 non-contributing buildings (this growth is shown in the Upper East Side Historic District map outlined in blue).[191]

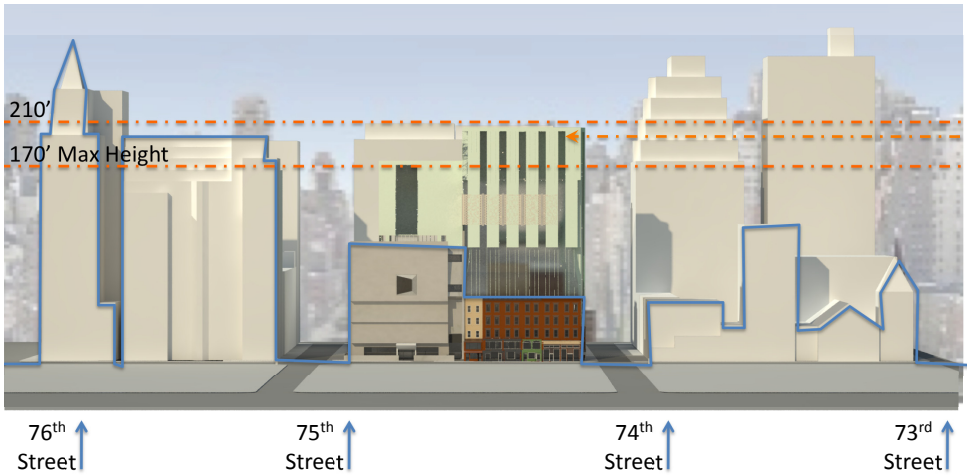
When looking at the buildings in the Upper East Side it is the Carlyle built in the 1930s that dominates the skyline topping out at 40 stories.[192] There are few buildings in the Upper East Side Historic District that exceed 210', due to the Chapter 9 Special Madison Avenue Preservation District. This regulates heights of buildings, the relationship of buildings to the sidewalks, balconies, and other such design concerns that deals with the development of a building. In particular it is the height limits that really impact the development of the Whitney. The site and its surrounding area are zoned for commercial and residential use. The 33-35 East 74th Street Brownstone that is being added to in this design proposal is zoned as a Limited Height District, this only occurs on the streets.

191 FRIENDS of the Upper East Side Historic Districts, Upper East Side Historic District Expansion, http://www.lexingtonexhibit.org/ (accessed January 08, 2012).

192 Landmark Preservation Commission, Upper East Side Historic District Designation Report., 1981, http://nycppf.org/html/lpc/downloads/pdf/reports/UpperEast Side_Vol2.pdf (accessed January 07, 2012).

Figure: 212. Looking at the elevation on Madison Avenue, showing what the addition will look like relative to the tallest building in the area the Carlyle a Rosewood Hotel. (Image Source: http://www.bing.com/maps)





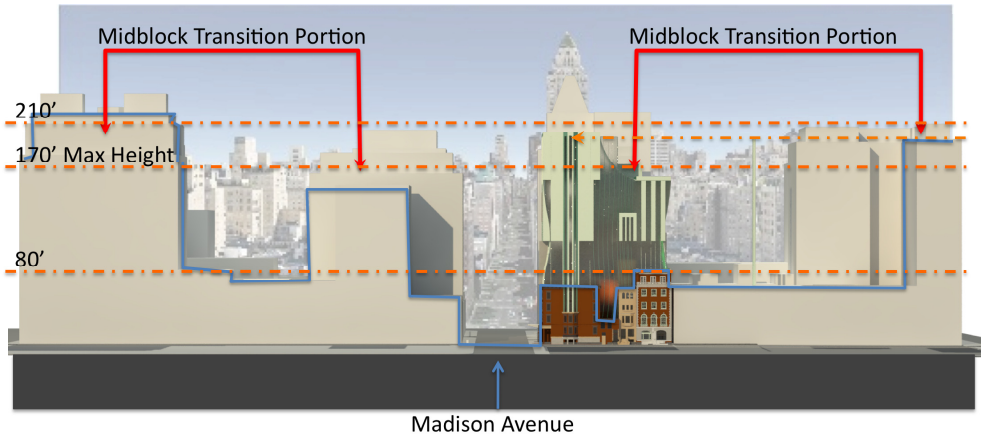


Figure: 213. Looking at the elevation on East 75th Street, identify the zoning height limits. (Image Source: http://www.bing.com/maps)
Figure: 214. Looking at the elevation on Madison Avenue, identify the zoning height limits. (Image Source: http://www.bing.com/maps)
Figure: 215. Looking at the elevation on East 74th Street, identify the zoning height limits. (Image Source: http://www.bing.com/maps)

Surrounding Context

Existing surrounding context

Existing surrounding context with proposed addition

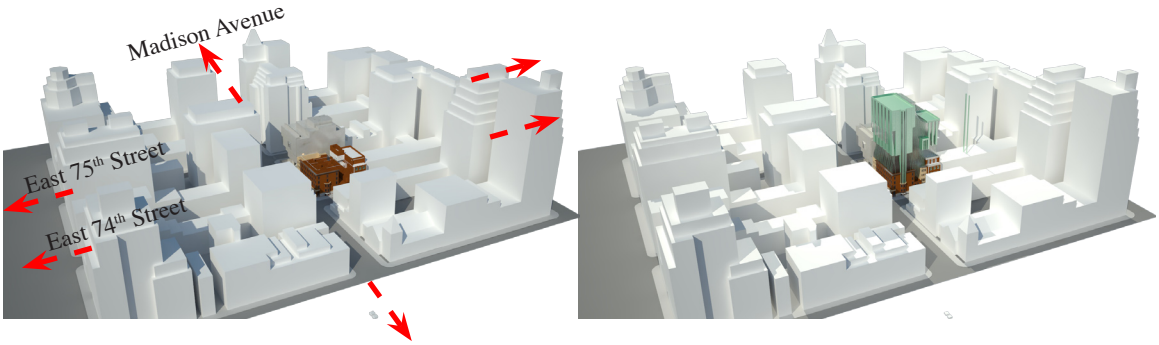


Figure: 216. These two images show how the site currently look and how the site will look with the addition. Looking towards Park Avenue.

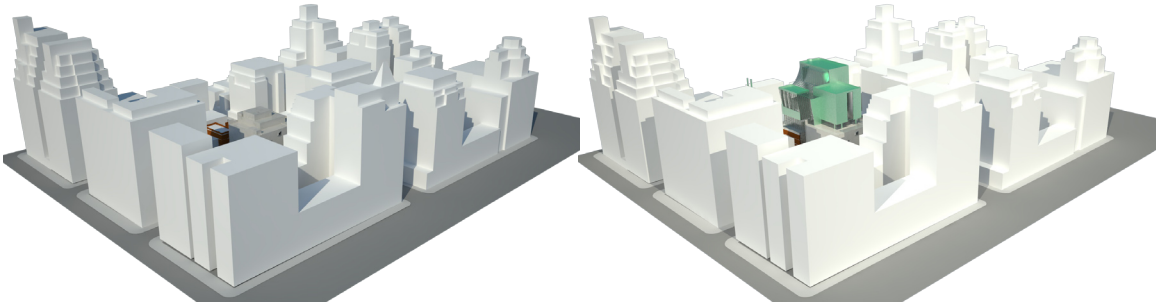


Figure: 217. These two images show how the site currently look and how the site will look with the addition. Looking towards 5th Avenue.

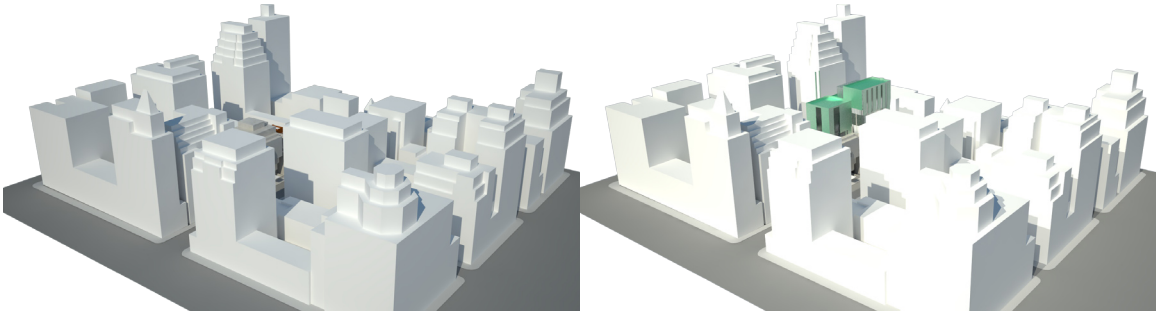


Figure: 218. These two images show how the site currently look and how the site will look with the addition. Looking towards Park Avenue.

Looking at the New York City zoning map the area in orange indicates the Midblock Transition Portion, which is a "Limited Height District" that caps the buildable height at 80'. The area in red is a Special Purpose District and has a Maximum buildable height of 170,' which mostly affects the Avenues. However, this area can be built up to 210' if the floors above 170' do not exceed 80% of the gross area of the floors below. In the land use map the area outlines in Blue is a Business Improvement District (created in 2009). The surrounding area is predominantly residential, but this is a cultural area with several cultural buildings within a walk able distance.[193] The site is constrained on the north and west sides of the Whitney Museum of American Art by Madison Avenue and 75th Street. The south and the east sides of the Whitney have five Brownstone residential buildings on the corner of East 74th Street and Madison Avenue. This information was used to help determine the height of the addition, proposed to the Whitney.

Add to a turbulent history, the current economic environment, which necessitated the formation of the 2009 Business Improvement District that includes Madison Avenue and the fierce debate between staunch preservationists and those accepting of growth and development must acknowledge the reality that the time for change has come. In the 1960s, there was a movement to save heritage buildings. Now that the buildings have been saved, it is logical that with a surplus of heritage buildings that their use will change. The buildings must now undergo modifications to meet various growing needs. The population of the United States has doubled, and a prudent design mechanism would be to allow for the densification of existing buildings to accommodate growth. In Manhattan the only room for expansion is skyward.

Step 2: Analysis of the Existing Buildings

To strike the balance between meeting the needs of the program and preserving the buildings, there should be an analysis of the existing condition of the Whitney and the Brownstones and of how these buildings came to become what they are today.

When approaching this analysis an architect should do both a historical analysis and a design analysis. First the historical analysis will be based on an analytic approach prescribed in Preservation Brief 17; an assessment system of how heritage buildings should be reviewed before any measure is taken to modify, and appears to be a logical step in the

193 City Planning Commission, "Article IX: Special Purpose Districts Chapter 9: Special Madison Avenue Preservation District," February 02, 2011.

analysis of any building. Thus, this brief has been used to help identify the contributing elements of a building that warrant retention. The process is structured by identifying three levels of visual analysis: Step 1: Overall Visual Aspects, Step 2: Visual Character at Close range and Step 3: Interior Spaces, Features, and Finishes. It should be noted that Brief 17 simplifies the analysis process by identifying the visual and tangible elements of a historic building.[194] Then a design analysis of the buildings design system should be conducted, using Precedents in Architecture: Analytic Diagrams, Formative Ideas, and Partis, written by Roger Clark and Michael Pause as a reference. [195]

Historical Analysis of the Brownstones

Information gathered from Upper East Side Historic District Designation Report provides a brief overview of the defining features of the Brownstones:

In the case of the Whitney Museum, the buildings being added to are "Brownstones," that are commonly found throughout New York City. Regionally, the term "brownstone" is used for townhouses primarily in New York. The material used in making the brown color is

194 Lee H. Nelson, Preservation Brief 17: Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character, September 1988, http://www.nps.gov/hps/tps/briefs/brief17.htm (accessed Februrary 16, 2012).

195 Roger H. Clark and Michael Pause, *Precedents in Architecture: Analytic Diagrams, Formative Ideas, and Parti*, 3rd (Hoboken, New Jersey: John Wiley and Sons, Inc., 2005).

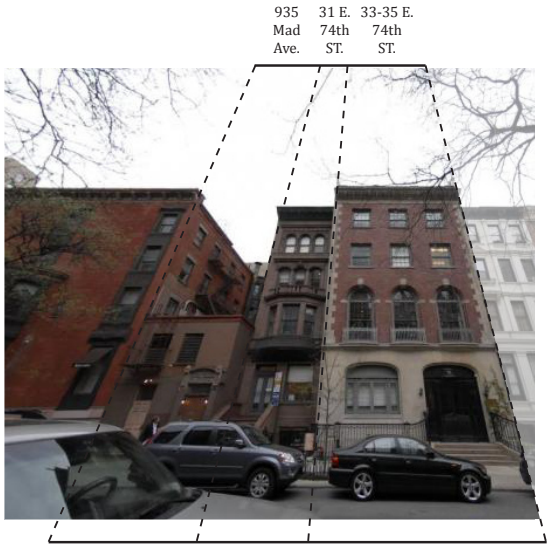


Figure: 219. Brownstones on Madison Avenue. (Image Source: http://ny.curbed.com/archives/2011/10/19/exwhitney_brownstone_neighbors_still_mad_at_whitney.php)

Figure: 220. Brownstones on East 74th Street. (Image Source: http://www.observer.com/files/2010/11/31-33_East_74th_Street.jpg)

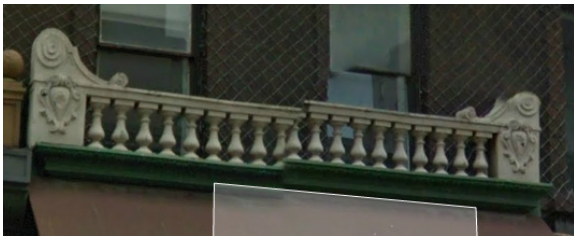


Figure: 221. Balustrade for 937 Madison Avenue added with the storefront in 1914. (Image Source: google map)
Figure: 222. Balustrade for 937 Madison Avenue added with the storefront in 1914. (Image Source: google map)
Figure: 223. Typical Stylized bracketed roof cornice for 933-941 Madison Avenue. (Image Source: google map)

Triassic sandstone.[196] Adjacent to the Whitney museum, the Brownstones located at 933-943 Madison Avenue and 31-35 East 74th Street were once a part of a development of nine residences. While the Brownstones adjacent to the Whitney are not historically significant as individual buildings for architectural merit, person, or event factors (commonly used to gauge the significance of a building, as noted in the Criteria for Evaluation.)[197] The Brownstones do represent different periods and styles of architecture. Also they contribute to the historic fabric of the neighborhood. Originally constructed in 1876 by S. M. Styles in a Neo-Greco style, these buildings were later consolidated from nine buildings to six.[198] Some were demolished, most were expanded, and others were drastically altered. The buildings that line Madison Avenue have parallel stories, and have, for the most part, retained the original features.

The buildings from 933-941 Madison Avenue are all Neo-Grec, five-story, mixed-use Brownstones, with storefront windows on the first two floors and residences on the top three floors. These buildings are all faced with a brown stone. All of the top floor windows are fully framed with projecting eared lintels. The back of the buildings also has the same arrangement of windows, the only difference being that the windows are framed only with a lintel and sill. They all have flat roofs with roof cornics that are articulated with stylized brackets. The overall form of these Brownstones is rectilinear.[199]

196 Liberty Harbor, The History of Brownstones in NYC – The Architecture, July 19, 2010, http://www.libertyharbor.com/resources/2010/07/19/the-history-of-brownstones-in-nyc-the-architecture/ (accessed March 24, 2012).
197 U.S. Department of the Interior, National Park Service, II. National Register Criteria for Evaluation.
198 Landmark Preservation Commission, Upper East Side Historic District Designation Report.
199 Ibid.

Each of the Brownstones has two sets of three windows, which is a common element seen in Brownstones. These repetitions in the windows tie the Brownstones together almost making them read as one building. However, various treatments of the storefronts, the break in the decorative roof cornices, and the simplified stucco treatment of the 943, reveals that the block is composed of six buildings.

The storefronts of the first two stories of the Brownstones on Madison Avenue were introduced after the original buildings were constructed as single-family homes. The introduction of the storefront required the removal of the original stoops.[200] The projection of the storefronts interrupted the original façade of the Brownstones and doubled the number of entrances, because there were both the store entrance and side entrances for the residential portions of the buildings.

The elements above are those that the Madison Avenue Brownstones share, but several elements distinguish these Brownstones. In 1919, 933 and 935 Madison Avenue were consolidated. This was also the same year they were converted from single-family homes into mixed-use buildings. Brownstone number 933 is located on the corner of Madison Avenue and East 74th Street. In 1884, a three-story bay window, having windows on each of the three sides, was added to the façade lining East 74th Street. Unlike the front brown stone façade, this wall is covered with brick facing. There are three sets of windows on this wall, but they are not equally distributed. These windows are distributed with two sets of three windows located near both ends of the wall, and a set of two windows centered above the bay window. The windows on 74th Street are fully in-framed, with projecting eared lintels. In 1885, a one-story addition was made next to 31 East 74th Street, and between 1916-1925, an additional story was added.[201]

The arched windows and its balustrade on the second floor commercial level, distinguish 937 Madison Avenue from the other Brownstones on Madison Avenue. Additionally, the storefront windows have flanking piers that remain from its 1914 conversion from a single-family home to a mixed-use building.[202] In the back of this Brownstone is a four story bay projection, starting at the Mezzanine level. It is unclear when this element was introduced, but it was likely introduced in 1914.

200 Robin Pogrebin, Brownstone That Has Eight Lives to Go, June 16, 2005, http://www.nytimes.com/2005/06/16/arts/design/16brow.html?_r=1 (accessed March 20, 2012).
201 Landmark Preservation Commission, Upper East Side Historic District Designation Report.
202 Ibid.

Figure: 224. Visual illustration on the identifying features of the brownstone located at 933-935 Madison Avenue: information gathered from the *Upper East Side Historic District Designation Report: Volume II.* (Image Source: http://www.bing.com/maps).

Figure: 225. Visual illustration on the identifying features of the 937 Madison Avenue: information gathered from the *Upper East Side Historic District Designation Report: Volume II.* (Image Source: http://www.bing.com/maps)

Not until 1942, were 939 and 941 Madison Avenue consolidated into one to become a mixed-use building. Currently, the storefronts are articulated by flanking piers and a balustrade that spanned the length of the original two Brownstones.[203]

By far the most drastic change seen with the Brownstones on Madison Avenue is the complete de-stylization of 943 Madison Avenue in 1927, the same year it became a mixed-use building. The entire front façade was plastered over, the window treatments removed (with the exception of the window sill) and the roof cornice removed. The eccentricities of the building are also seen in the back with windows that are not uniform in size or placement. While according to the Upper East Side Historic District

203 Landmark Preservation Commission, Upper East Side Historic District Designation Report.

Figure: 226. Visual illustration on the identifying features of the 943 Madison Avenue: information gathered from the *Upper East Side Historic District Designation Report: Volume II.* (Image Source: http://www.bing.com/maps)

Figure: 227. Visual illustration on the identifying features of the 939-941 Madison Avenue: information gathered from the *Upper East Side Historic District Designation Report: Volume II.* (Image Source: http://www.bing.com/maps)

Designation Report, 943 Madison Avenue does not have a style and is not contributing to the historic district, because of alterations made in 1927, it could be argued that this building is the most significant of the six original Brownstones on Madison Avenue.[204] This building represents a period in history when the ornamental designs of an earlier period were briefly no longer in fashion.

In 1998, the basement, ground floor, and second floor of the building were connected to the Whitney Museum to 31 and 33-35 East 74th Street when the Whitney was forced to expand from within because they were not able to get any enhancement designs approved by the Landmarks Preservation Commission.

While the Brownstones on Madison Avenue have retained the majority of their 1876 design, the Brownstones on East 74th Street have undergone more drastic evolution. In 1896-97, the façade of 31 East 74th Street went from Neo-Greco to Neo-Renaissance in style.

204 Landmark Preservation Commission, Upper East Side Historic District Designation Report.

The new façade, designed by Alexander M. Welch for William W. Hall, is the existing façade. The changes to the façade were done to make the building appear more luxurious. It was sold shortly after the upgrades to Raymond Lesher in 1898.[205]

Some of the prominent differences from the original façade are the angular oriel window on the second floor, which is topped by a stone railing. The Corinthian columns and pilasters detailing that separates the windows and has a cartouche centered above the middle window on the third floor enframenment, and the fourth floor relief "arcade with foliate carving and a rosette frieze beneath a projecting roof cornice." The ground floor storefront is modern. The only element that appears to have remained the same, ironically, is the stoop. [206]

In 1950, 31 East 74th Street was converted into multiple dwellings, but in 1995-1998 (after the historic district was setup) this building was adapted for the Whitney Museum. The building, currently, has a few offices and is the main source of vertical circulation for office space located in 31 East 74th Street. Due to the new programs additional need for circulation, it appears that none of the interior historic elements have been retained.

Originally, the site currently numbered 33 East 74th street, consisted of two of the nine Brownstones, but in 1901, the 1876 Brownstones were replaced by a Neo-Georgian style building. It is unclear when the building went from being a four-story to a five story with the top floor set back. The first floor of the building is faced with a limestone base, a wide segmental-arched entrance, and a window. The window has leaded glass panes, and the doorway has iron grillwork. The stoop has an iron areaway railing. The rest of the building is constructed with Flemish bonded brick with deeply recessed mortar joints. Both of the sides have a limestone quoin that frames the brick. There are three multi-paned round-arched windows on the second floor with sills, impost blocks, brick splayed lintels, keystones and iron balconies. The fourth floor also has three windows with iron balconies. The roofline has a cornice with modillion. The fifth floor has a balcony, cornice, and roof balustrade.[207] From the floor plans, it is evident that only the staircase on the south wall remains from the 1901 building. The interior features that currently exist are a product of

205 Landmark Preservation Commission, Upper East Side Historic District Designation Report.
206 Ibid.
207 Ibid.

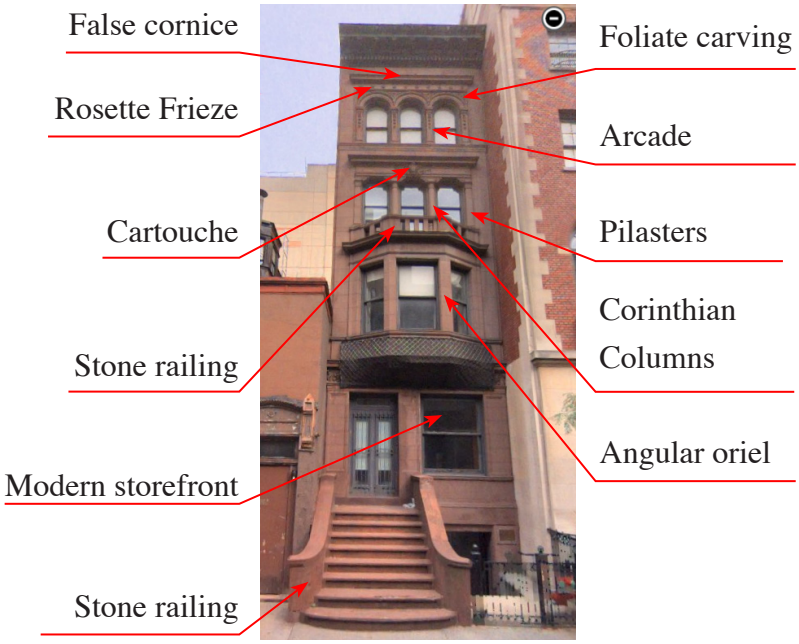


Figure: 228. Visual illustration on the identifying features of the brownstone located at 31 East 74th Street: information gathered from the *Upper East Side Historic District Designation Report: Volume II.* (Image Source: http://www.bing.com/maps)

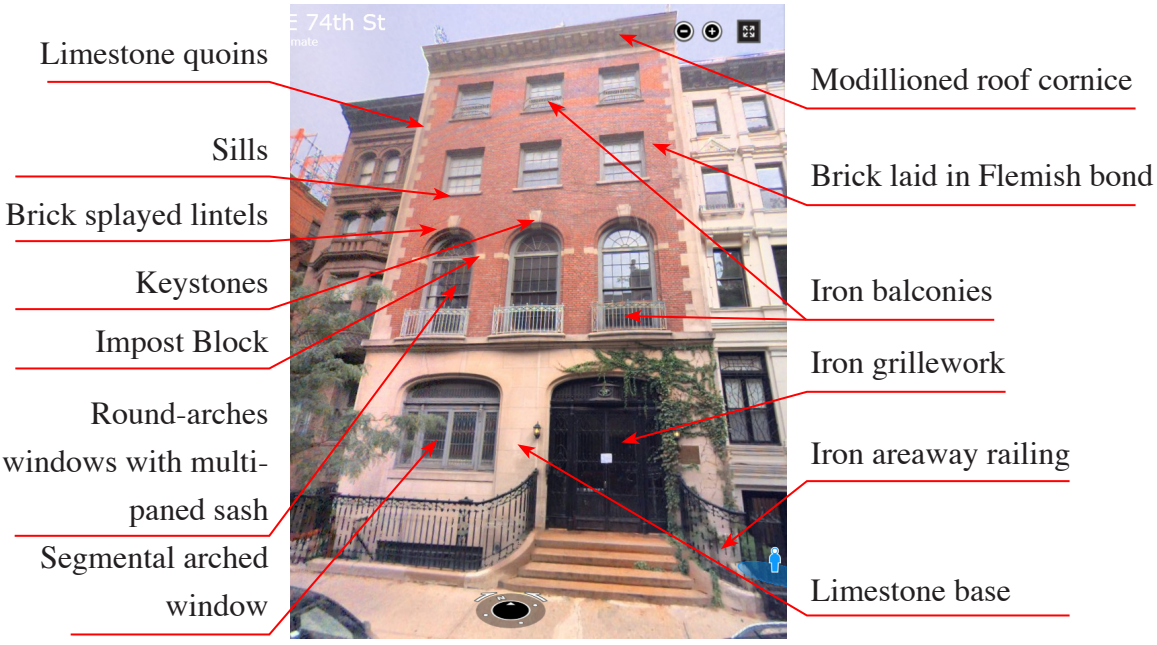


Figure: 229. Visual illustration on the identifying features of the brownstone located at 33-35 East 74th Street: information gathered from the *Upper East Side Historic District Designation Report: Volume II.* (Image Source: http://www.bing.com/maps)

the 1998 intervention when the Brownstones were converted into office, library, and archive space for the Whitney Museum. This intervention moved the program from the fifth floor of the Whitney to the Brownstone, which increased gallery space by 30%.[208]

Realistically, when considering the augmentation of an existing building, an architect will need substantial information on the interior. Information on the interior of the Brownstones as they currently exist compared to the way that the interior existed historically has not been located. Being that there is little to no information on the interior condition of the Brownstones, this paper will infer the interior condition by analyzing floor plans. The floors of the Brownstones suggest that the only interior elements that would warrant retention are the staircase in the 941 Madison Avenue, and the staircase in 33 East 74th Street.

Design Analysis of the Brownstones

With the information gathered from the historical analysis, an architect can take that information and apply it to a design analysis of the existing buildings, while in many cases the design concept is clear, the building, over decades, gain a different meaning that is open to interpretation. Such changes can be physical, due to additions; others can be a change in the social and cultural value of the building.

As stated in the overview of the history of the Brownstones, the most visible design features is the repetition of the windows. However, the organizing motivation for the Brownstones design is based on a practical and utilitarian need to provide adequate lighting and ventilation. In many ways, the Brownstones are a product of the restraints of the technology of the period, many of the proportioning systems were derived from the abilities of the construction material. There is no fuss in the design of the Brownstones, other than a few ornamental elements.

The overall geometry of the Brownstone is a rectangle; it is found in plan, elevation, massing of the units, and massing of the whole.

208 Carol Vogel, Whitney Scraps Expansion Plans, April 15, 2003, http://www.nytimes.com/2003/04/15/arts/whitney-scraps-expansion-plans.html (accessed December 10, 2011).

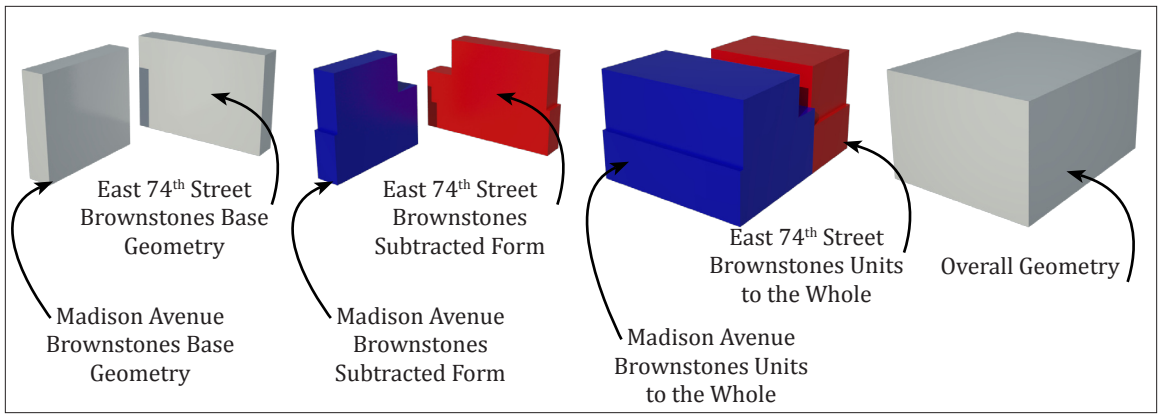


Figure: 230. Subtractive: while fundamentally composed of units the images above are illustrating the brownstones are essentially a product of subtraction.

A result of the simplicity of form, the Brownstones can be interpreted as a product of subtraction if one did not know that it was composed of units (this is illustrated in the "Subtractive" diagram. In the diagram the white represents the start and end geometry, the blue represents Madison Avenue Brownstones, and finally the red represents the East 74th Street Brownstones).

The added elements are distinguishable, such as the bay windows and storefronts, that were literally added after the Brownstones were built. If it were not for these elements, Brownstones would nearly be a pure representation of utilitarian architecture, with only

Figure: 231. Additive: these diagrams are identifying the additive elements, which were literally added after the Brownstones were completed.

a few lintels and cornices embellishing the facades for character not massing. Throughout the decades, the alterations made to the Brownstones became more flamboyant and individualized.

When comparing the floor plan and the elevation of the Brownstones it can be seen that the height and width of the elevation is proportional to the depth and width of the 2nd Mezzanine floor through the 4th floor in plan. This is true for the Madison Avenue Brownstones and the 33-35 East 74th Street. This is illustrated in red, in the "Plan to Elevation" diagram. The blue identifies the leftover space defines the out door area of the Brownstones, which is outdoor space to allow for lighting and ventilation.

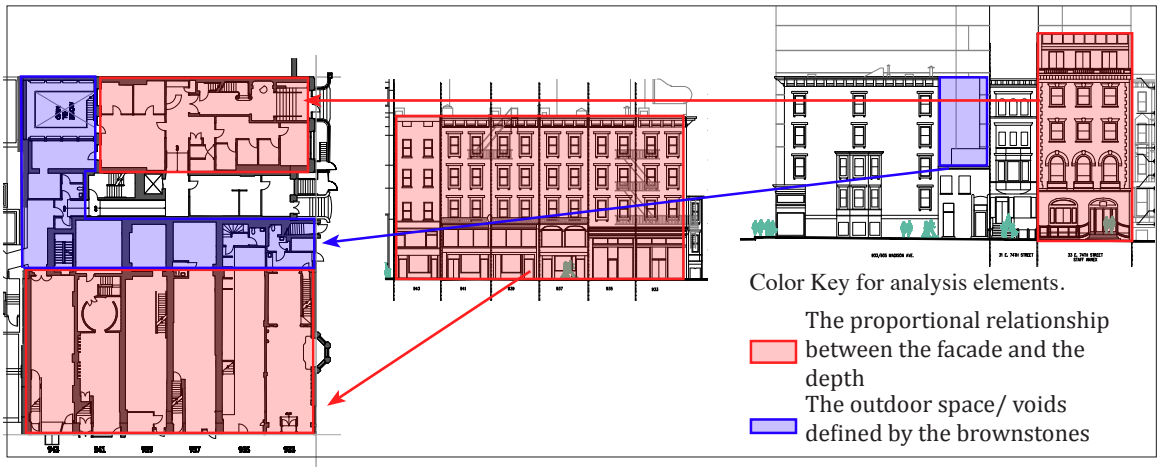


Figure: 232. Plan to Elevation: these diagrams illustrate the proportional relationship between the floor plan and the elevation of the brownstones.

In the Units to the Whole diagram, it is made evident that the whole is composed of elongated and narrow rectangular masses. As seen in this diagram there are two basic unit types the brownstone on the Madison Avenue and those on East 74th street (the units on 74th street have been simplified). The Brownstones are configured with six Brownstones on Madison Avenue (which are identified in blue in the "Unit to Whole" diagram) and two (proportionately three because 33-35 East 74th Street was originally two Brownstones) Brownstones on East 74th Street (are identified in red in the "Unit to Whole" diagram). While the Brownstones are all comparable in width the Brownstones on East 74th Street are longer in depth. The colored in portions indicates the proportionate relationship of out door space in relation to the unit. Illustrated in the "Unit to the Whole" diagram is also fact that generally the overall depth is 4 times the depth of the outdoor space.

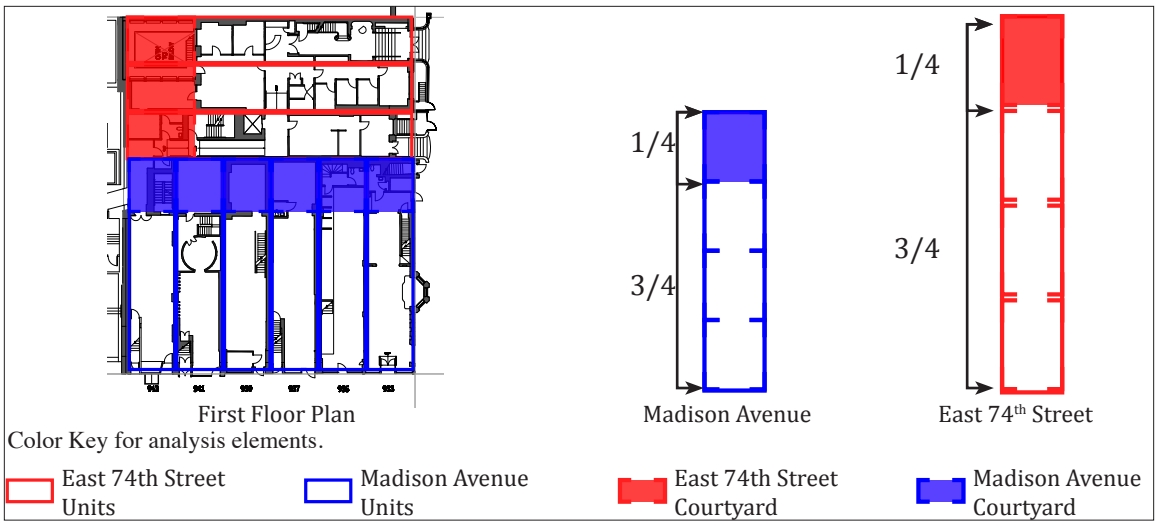


Figure: 233. Units to the Whole: these diagram illustrates the breakdown of the units to the whole and the proportional relationship of indoor to outdoor.

Another discernible pattern found in the Brownstones is the repetition of windows that is inextricably linked to what a Brownstone is. The vertical repetition on Madison Avenue is composed of the six Brownstones that each have two columns of windows. The horizontal repetition created by the three rows of windows is carried through the six Brownstones. The Madison Avenue Brownstones have a 2/3 relationship of columns to rows of windows per unit.

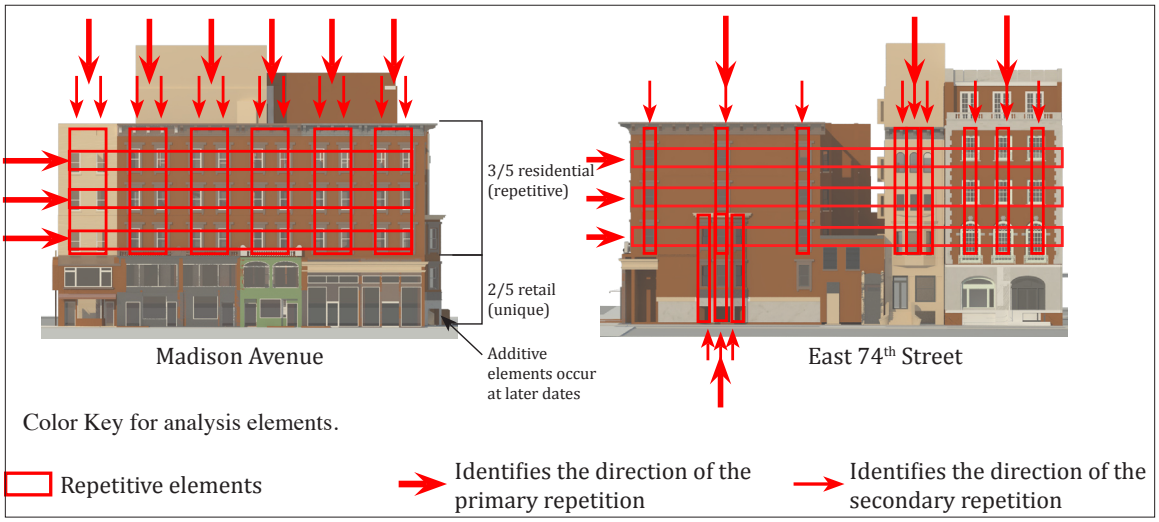


Figure: 234. Repetitive: the arrows in these diagrams are illustrating the repetitive pattern found in the relationship of the windows to the units.

The vertical repetition on East 74th Street differed from Madison Avenue rather than sets of two the repetition is composed of set of threes; three columns of windows, to three rows of windows, to three Brownstones. The East 74th Street Brownstones have a 3/3 relationship of columns to rows of windows per unit.

Unique elements in this case are synonymous with the additive diagram except in this diagram the unique repetitive elements are being identified. Originally, all of the windows were uniform in size and relative location on each unit, and all of the units were five stories in the front and two stories in the back. Variations were only introduced after the Brownstones were originally completed. At a later date the bay windows were added and the storefronts were introduced creating unique elements that still managed to maintain asymmetrical repetition. The introduction of the storefronts broke up the continuity that would have originally been experienced on the ground level creating an irregularity in the rhythm of the Brownstones. When additions were added the pattern were often reproduced. As was done with the introduction of the bay window to 933 Madison Avenue (on east 74th street) three columns and three rows of windows, centered on the center window. Effectively continuing the rhythm of the windows. The majority of the uniqueness found in the Brownstones is found on East 74th Street the variation in scale and proportioning is attributed to the fact that 31 East 74th Street was drastically modified twice and 33-35 74th Street replace two Brownstones that were like those on Madison Avenue. Brownstones on 74th street have the strongest story of change varying in height, portioning, and design. However, these Brownstones are still mostly united in repetition. Despite the idiosyncrasies

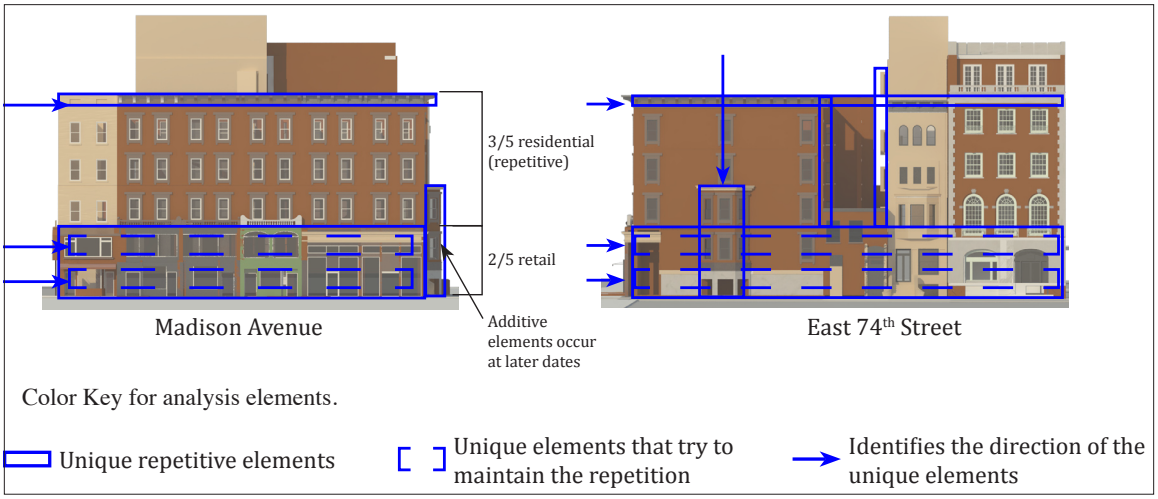


Figure: 235. Unique: being that the additive elements and the unique elements are one in the same. These diagrams are illustrating the fact that many of the unique elements perpetuate the patterns of the elements that have been replaced.

found in the Brownstones, the variations have had little effect on the rhythm developed by the fenestration of the Brownstones (these features have been identified in the "Unique" diagram).

Generally, the overall symmetry of the units is a vertical symmetry. The horizontal symmetry of the buildings is bottom heavy; due to the storefronts. The repetitive nature of the brownstones dominates so much that many of the brakes in rhythm can be over looked, such as the back side of the Madison Avenue Brownstones on east 74th street, the void of the back portion and the irregularity of that part almost reads as one unit in itself. In fact the repetition of the windows reads so strongly it almost negates the voids contribution to the symmetry of East 74th Street. There are only a few elements that break up the symmetry of the Brownstones, all of which were the product of later interventions.

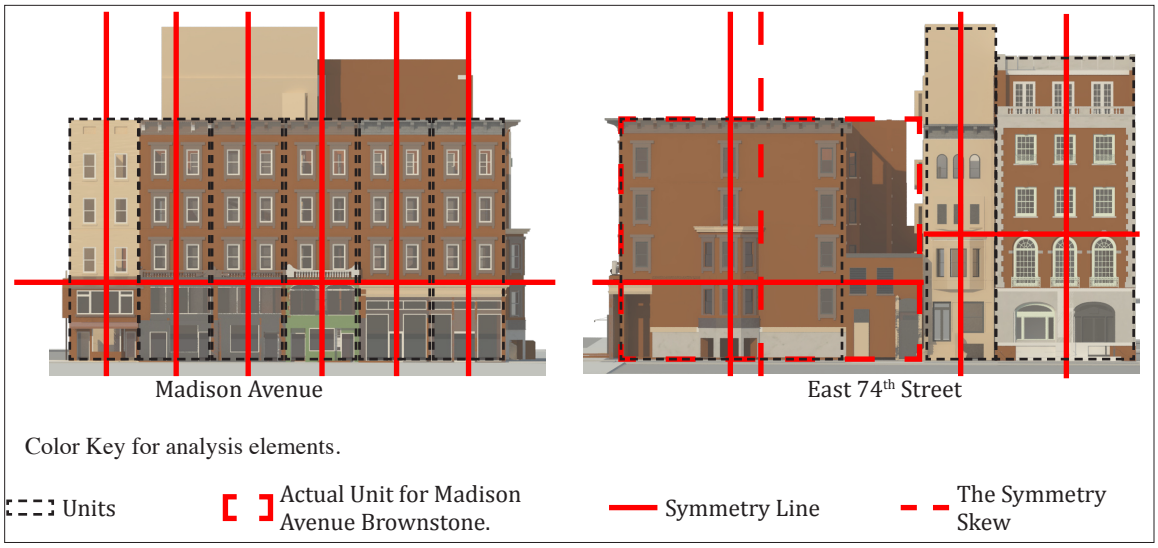


Figure: 236. Symmetry of Parts: these diagrams illustrates the symmetry of the units.

The symmetry of the whole for Madison Avenue is vertically symmetrical, because the building fundamentally reads as one. Unlike East 74th Street, which is a composition of three distinct Brownstones. Thus, when reading it as a whole it has a vertical asymmetry (the symmetry of this elevation is slightly skewed because of the density of the fenestration and the massing of 31 and 33-35 East 74th Street). Horizontally the symmetry of both Madison Avenue and East 74th Street is asymmetrical.

Made evident in this analysis is that the Brownstones are dominated by the simplicity of form and the repetition of the elements.

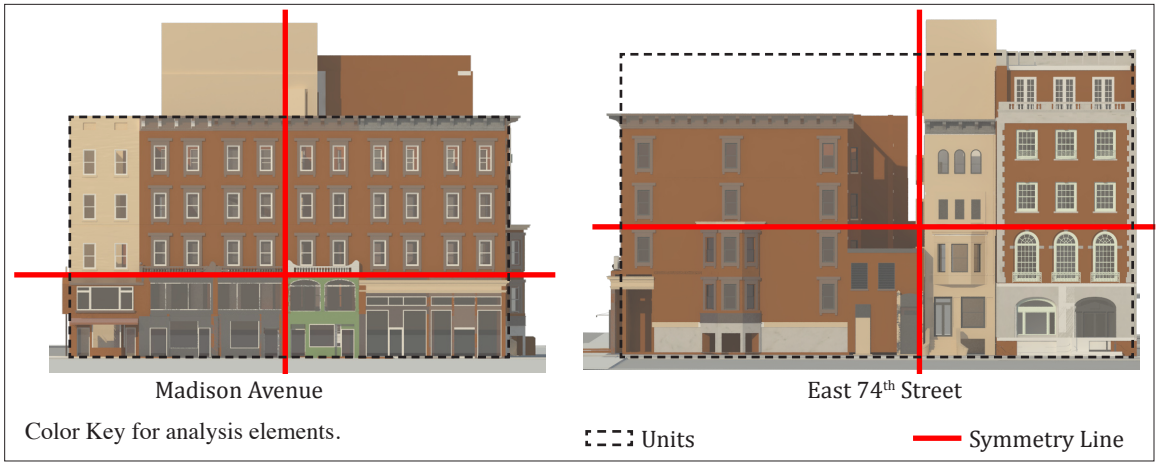


Figure: 237. Symmetry of Whole: these diagrams illustrates the overall symmetry of the Brownstones.

Historical Analysis of the Whitney

The Whitney Museum of American Art, was founded in 1931 by sculptor Gertrude Vanderbilt Whitney to foster and exhibit the works of American Artists. The first home of the museum was at 8-12 West 8th street.[209]

When the Whitney moved to its current location six earlier residences, much like the Brownstones covered earlier, were demolished to make way for Marcel Breuer's architectural edifice. Located on the corner of East 75th Street, at 945 Madison Avenue, the Brutalist landmark was completed in 1966. Five-story tall the museum is defined by its inverted ziggurat profile, which steps back three times. The final step back ends in a sunken sculpture garden, outlined by a stone areaway wall and traversed by the entrance bridge. The most pronounced architectural feature is the trapezoidal windows that rise off of the surface of the building like barnacles. The entire building is faced with pink granite. Separating the Whitney from the Brownstones is a large dividing wall.[210]

The interior of the Whitney is characterized by its large expansive space that is uninterrupted by columns. Moveable partitions divide the galleries. The design of the ceiling is one of the most defining features found within the building. Both the floor and the ceiling are unfinished, allowing the interior exposed concrete to relate with the smooth surfaces of the grayish pink granite of the exterior.[211]

209 Christopher Gray, *The Controversial Whitney Museum*, November 11, 2010, http://www.nytimes.com/2010/11/14/realestate/14Scapes.html (accessed December 17, 2011).
210 Ezra Stoller, Whitney Museum of American Art (New York: Princeton Architectural Press, 2000). 1-13
211 Ibid. 83

Originally, the fifth floor of the Breuer building was designed as office space, however as mentioned earlier the offices were moved to the Brownstones to make room for additional gallery space. Located on the fifth floor is also a roof terrace.[212]

While the Whitney is appreciated by many, Breuer did receive some criticism for his design. To quote Robert Venturi from Ezra Stoller's article in the Whitney Museum of American Art: "His glib eclecticism is nothing if not an affront to Breuer's life long dedication to straightforward functionally determined solutions, prefabricated buildings components, and a design method modeled on a simplified view of science."[213]

Design Analysis of the Whitney

As with the Brownstones the Whitney is a product of the available technologies. Unlike the underlining, utilitarian nature of the Brownstones the Whitney was designed with a more esoteric parti. Breuer asked the question "What a museum was not" to determine what it should be. Breuer determined a museum was not a skyscraper or any other building in the area so he took the consistent setbacks seen in the building heights of the midrises that line Madison Avenue and literally and figuratively turned the city on

212 Stoller, *Whitney Museum of American Art,* 84
213 Ibid. 12

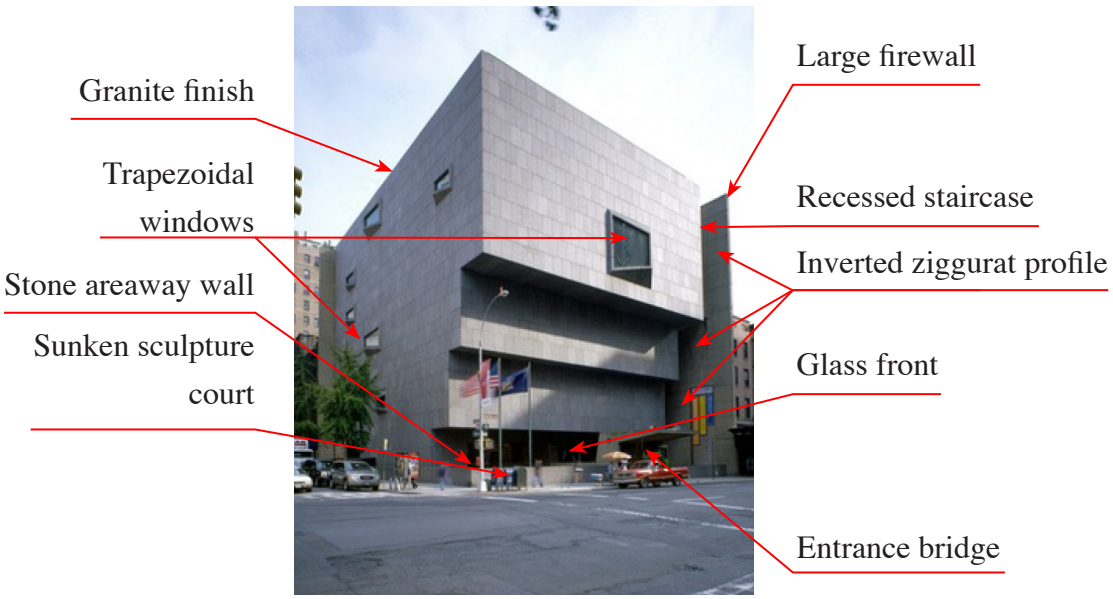


Figure: 238. Visual illustration on the identifying features of the Whitney building: information gathered from the *Whitney Museum of American Art by Ezra Stoller.* (Image Source: http://buildipedia.com/media/k2/items/cache/5a05a447acfdf6fcc40548cc4c1cea8d_XL.jpg)

its head. Which is where Breuer got the inverted ziggurat profile from, that has become synonymous with the Whitney. He used the windows to strengthen this concept by orienting the windows to face the profile of the set backs, which also happens to be north. He even used the portioning of the sidings to strengthen his proportioning system. The underling concept of turning conventional expectation on its head provided the opportunity for Breuer to use the inverted set backs as a mechanism to invite people in from the streets. By distinguishing itself from the surrounding storefronts that lined Madison Avenue the bridge crated a threshold that would make visitors feel like they were arriving somewhere.

The base form of the Whitney is perceptively a square, but in reality it is a slightly elongated cube. The dominating geometry on Madison Avenue is a square, where as the rectangle dominates East 75th Street. While the over arching geometry is not a square, Whitney is still based on simplicity of form.

The inverted squared off ziggurat form is the product of subtraction which is illustrated in the "Additive and Subtractive" diagram. The sunken courtyard is constructed out of the negative developed by the parti and the result of the fortuitous excavation of the site before Breuer was commissioned. Breuer's ability to retain the overall appearance of the cube can be attributed to the sunken courtyard. It is only the added elements, like the windows and the bridge that breaks up the crisp recti-linearity of the base form with idiosyncratic angles. Only apparent in section Breuer introduces are the canted walls in the vertical circulation and the loading area. The last added element is the giant firewall.

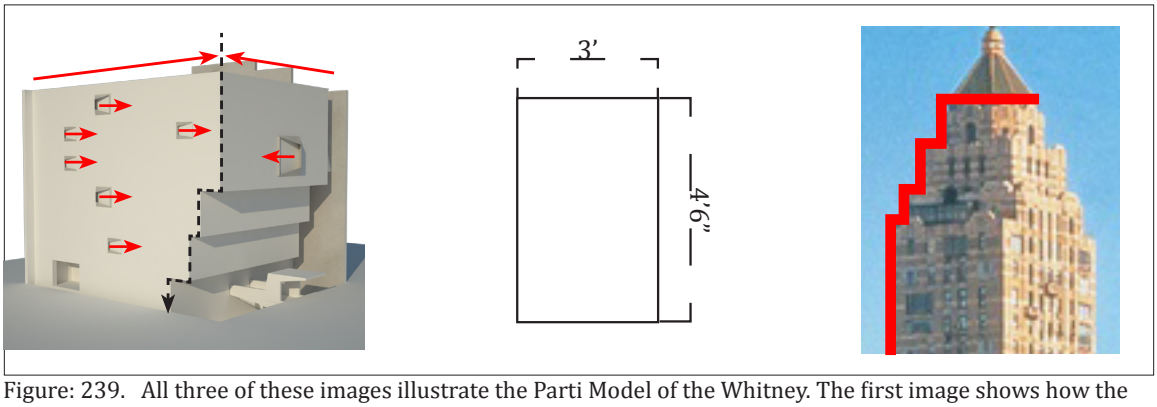


Figure: 239. All three of these images illustrate the Parti Model of the Whitney. The first image shows how the windows have been used to reinforce the parti by facing the profile the defines the Parti.
Figure: 240. The siding illustrates the proportional relationship of the set backs.
Figure: 241. Carlyle a Rose Hotel illustrates the setback frequently seen in the Upper East Side. (Image Source: http://www.rosewoodhotels.com/en/carlyle/travel_details/the_destination/)

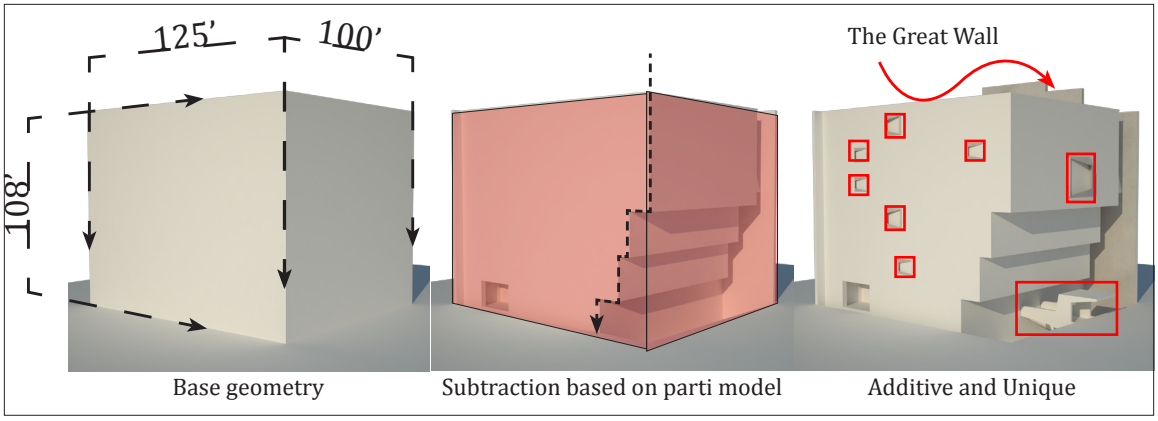


Figure: 242. Additive and Subtractive: reading from left to right. The first image show the base form which is not a perfect square. The second image shows how the current form is a product of subtraction, using the profile of the city as inspiration. The final image shows the added unique elements of the Whitney.

In the "Plan to Elevation" diagram the square geometry seen on Madison Avenue is reflected in the plan of the first floor as is the rectangle of East 75th Street. Because of the simplicity of the form the plans and elevation are reflective of each other but unlike the Brownstones they are not perfectly reflective, there are slight variations in the relationship of the floor plan and the elevations.

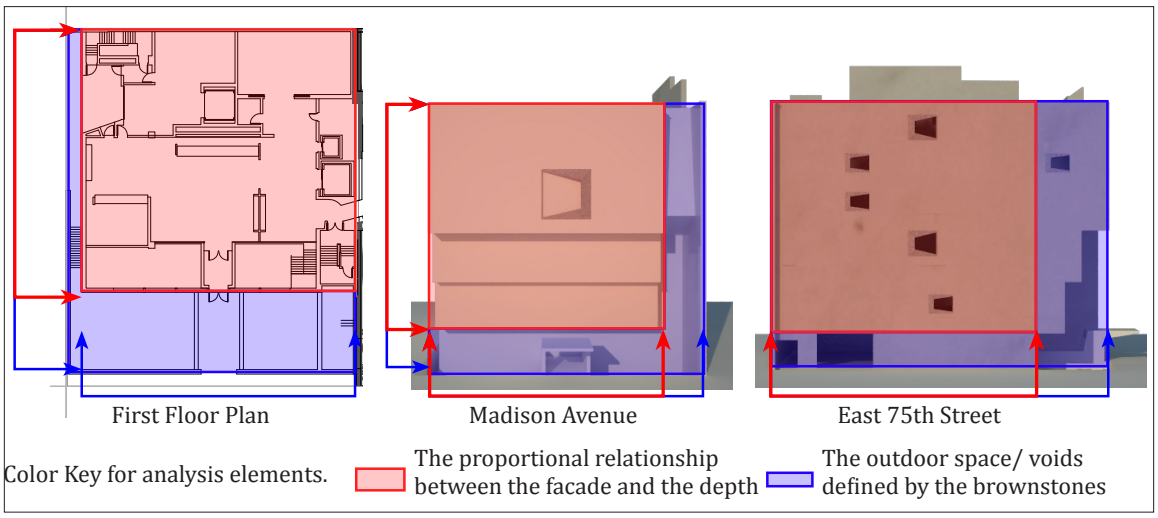


Figure: 243. Plan to Elevation: these diagrams have illustrated the relation between the floor plan and the elevation of the Whitney. The red and blue arrows show how the basic form of the square and the rectangle are often scaled up, to develop a continuity with the overall design of the Whitney.

The Whitney is one unit; however, in the "Units to the Whole" the relationship of the square in relation to the Madison Avenues overall façade composition there is a notable use of the reduction of the square. The reduction can be seen in the geometry of the windows, in some instances the set backs, and the overall composition of the façade. The same is seen on East 75th Street with the rectangle.

While there is a repetition in the geometry of the form as covered earlier, there are few other elements in the Whitney that are repeated in its overall composition. When something is repeated it is done in pairs. For example, the second and the third floor are the same height, but all of the other levels varied in height. Each of the windows is used in pairs, with the exception of the Madison Avenue window. There are two non-sculptural windows that repeat as well. Many of these patterns are more observed then understood; at best these repetitive elements may be incidental. Some of the added elements appear to have little reasoning; however, when carefully analyzed, one can find reason. For example, the inherently random placement of the windows, are carefully placed based on the needs of the interior, not to develop a rhythm on the exterior. Then there is the sloped recessed vertical area that is carefully aligned with the brownstones.

While the designs of the windows are often criticized for not having a relationship with the simplicity of Breuer's approach, they do play a role in drawing attention to the parti of the Whitney. The "Repetitive to Unique" diagram shows that he actually used the

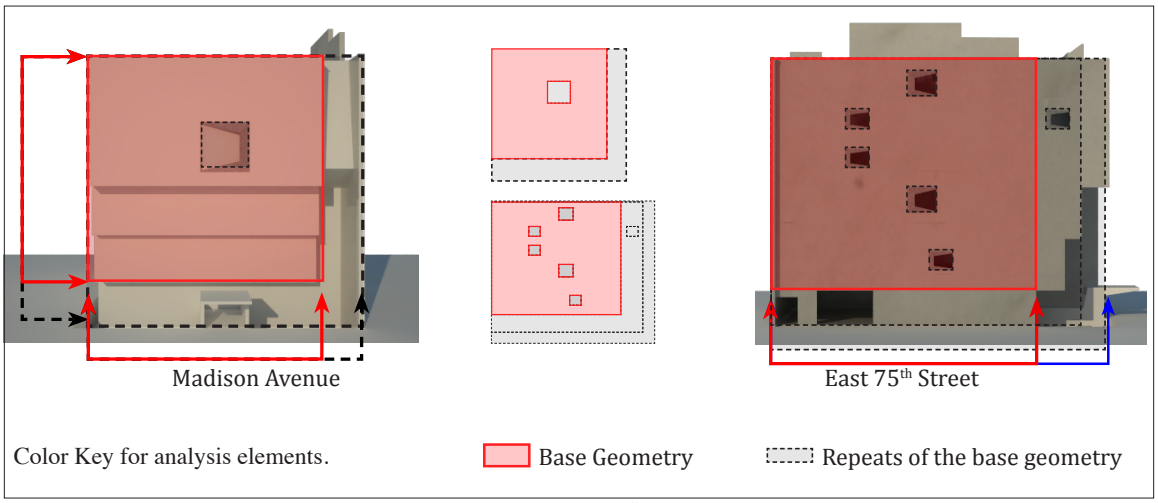


Figure: 244. Unit to the Whole: these diagrams reinforce the "Plan to Elevation" diagram, by further illustrating the reoccurs of the square and rectangle in the separate elements found throughout the Whitney. Once again the arrows are pointing out how the base shapes are proportionally scaled up and down.

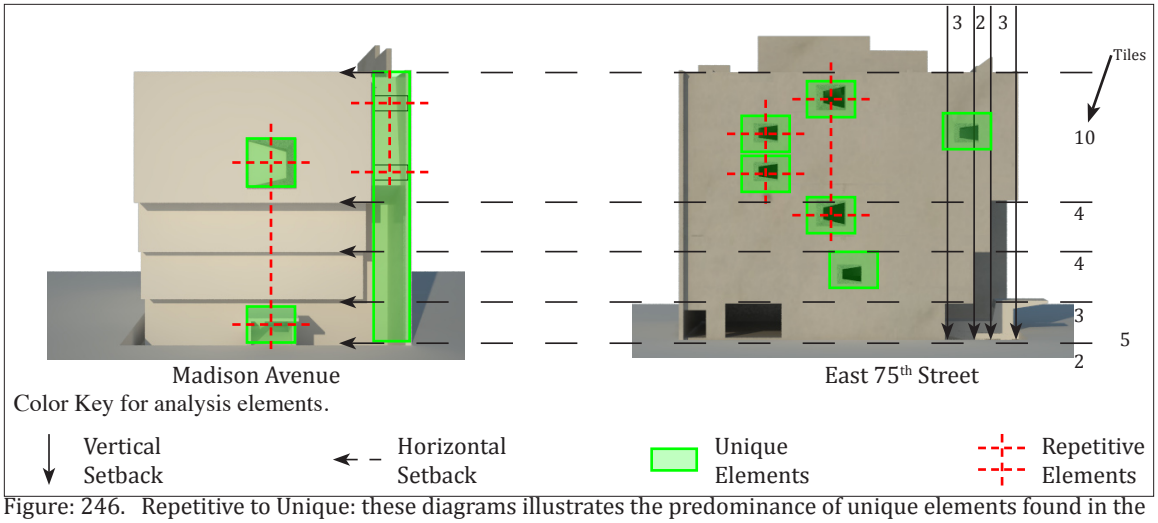


Figure: 246. Repetitive to Unique: these diagrams illustrates the predominance of unique elements found in the Whitney and the few repetitive elements. The black arrows identify the portioning of the setbacks.

windows to highlight the defining edge, as illustrated in all of the windows that face the profile of the setbacks that characterizes the Whitney. This is reinforced with the siding and its relationship to the vertical and horizontal setbacks of the profile.

While the building is asymmetrical, Breuer was able to develop a bazaar symmetry with nearly unrelated elements. At first when looking at the Madison Avenue façade one might not notice that while the window and bridge are centered with the overall building, they are off centered relative the surface they occupy. He centered the window and Bridge with the overall mass of the building on Madison Avenue, which distracts from

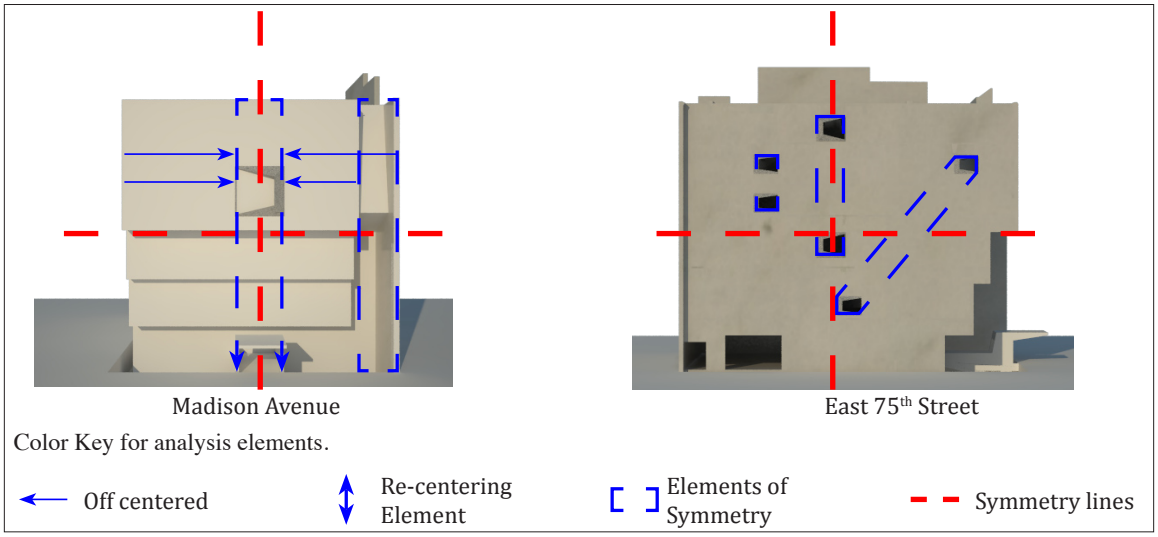


Figure: 245. Symmetry and Balance: these diagrams illustrates the uniqueness of the symmetry found in the Whitney.

the anomaly created by the vertical set back. This gives the building the appearance of symmetry. In the end, the Whitney is ruled by controlled asymmetry. For East 75th Street the vertical symmetry is centered on the two larger windows while the horizontal is located perpendicular with the top setback; this symmetry does not include the basement level because it is not visible. By disproportionately placing the windows on one side Breuer re-centered the asymmetry that is created by the setbacks. On Madison Avenue the horizontal line is the same as East 75th street and the vertical is perfectly centered (but not symmetrical). This can be seen in the "Symmetry and Balance" diagram.

This analysis of the Whitney illustrates that it is dominated by the simplicity of form and the uniqueness of the elements.

Now there is a way to identify the similarities and difference between the existing buildings, literally, metaphorically, or in an otherwise determined way. Much like the one listed below is a summary of the similarities and differences identified in the analysis illustrated earlier in this section.

Once the defining elements have been identified, it is important to isolate a few distinguishing characteristics that make these buildings what they are. This can be done by identifying a pattern. For the Whitney in this case simplicity of form and uniqueness has been identified as the underlining pattern. For the Brownstones simplicity of the form and repetition has been identified as the underlining pattern. However, other characteristics

Similarities

Building A (the Whitney)
- Composed of predominantly linear line, with the exception of the windows and one wall
- Product of subtraction from the cubed

Building B (the brownstones)
- Composed of predominantly linear line, with the exception of the bay windows (in plan)
- Product of subtraction from the rectangular mass

Differences

Building A (the Whintey)
- Base geometry a cube
- One unit
- Composed of unique elements
- Asymmetrical

Building B (the brownstones)
- Base geometry a rectangular mass
- Composition of units that make up the whole
- Based on repetition (with few unique elements, which are more anomalies than apart of the over all composition
- Symmetrical

Figure: 247. Listing of the similarities and differences found between the existing buildings.

could have been selected according to another architect and invested parties value system. From there an architect can identify and select a few of the predominate features that contribute to the simplicity and uniqueness of the Whitney, such as the fenestration, the overall form, the consistent uses of the square, etc. The same will be done when identifying what contributes to the simplicity and repetition of the Brownstones, such as the rhythm developed by the windows, the repetition seen in the unit to the whole, etc. Select as many prominent elements identified in the existing buildings as determined necessary to develop a relationship between the existing buildings and the addition.

When selecting the defining elements, one should consider what the relationship that is going to be developed between the three components will be. Will the relationships be based on similarities or differences? This will discussed later in the design section, first the value system for the addition needs to be developed using the information attain in this section to educate the stakeholders.

Now that the Brownstones and the Whitney have been analyzed using Brief 17 as a reference, the values of their features will be given consideration according to their historic importance. Such defining characteristics as the double hung windows with keystones lintels, and the decorative cornices with modillions and dentils are important. It will be decided during the development of the value system when and how it is acceptable to alter those elements.

Step 3: develop a value system

Now that the history of the existing buildings has been outlined, the question is how to successfully integrate the Whitney, the Brownstones, and a new extension's circulation and program. The main difficulty is not simply converting a residential building into a public civic building; it is converting several independently operating commercial/residential and civic buildings into one public civic building. Many of the existing elements, such as the stairs, windows, and even walls in the Brownstones become a constraint. For instance, there is no longer a need or desire for several independent bathrooms with bathtubs for each of the existing buildings.

It should be noted that this section will focus on the value system developed for the Brownstones, because the original Whitney will incur few changes since it is already a museum. Retaining the entire building and all of the architecturally distinguishing features that characterize a Brownstone would be the ultimate objective for the preservation of the Brownstones; however, this is may not be viable for the Whitney Museum because the museums' needs are not suitable for the space, as it exist. The Whitney Museum's mission is not to proliferate the history of how people lived, but rather of how people expressed themselves. Additionally, the intent here is not to maintain the Brownstones as they are historically recognized, but rather to capture the essence of the Brownstones through the retention of their dominating spatial relationships and materiality.

Through the analysis of the Whitney Museum's numerous past attempts to expand into the Brownstones, a value system has been defined. This value system will be applied to gauge what historical features should be kept and what can be altered. As mentioned in the overview of the basic process, when determining the value system for a development of an addition, it is critical to have the input of stakeholders and the community. However, since the contentious history of the museum is well documented, resources are easily accessible for a hypothetical intervention. The value system for this proposal is deduced from the collective recorded values of the community and stakeholders.

Points of Evaluation

When walking along Madison Avenue pedestrians are unaware of the three decade long battle the Whitney Museum has waged attempting to expand and develop the adjacent site. What is it about these Brownstones that are so important and worth saving that numerous development proposals, some that include the Brownstones and others that propose removing them, have been rejected?

The notion of what defines a Brownstone has evolved. In fact, all of the Brownstones on Madison Avenue had one of the commonly identifying features of a Brownstone removed at the start of the twentieth century —the stoops. The stoops were replaced by storefronts when the facades of these Brownstones underwent their first transformation from single-family homes to apartments. This point was not covered in the designation report; it was revealed in *The New York Times* article about the perils of the *Brownstone that Has Eight Lives to Go*.[214] These were drastic changes that would arguably be unacceptable to preservationists today, but were accepted in the past.

The first element Preservation Brief 17 suggests identifying a building's overall shape, which is usually a defining element of a Brownstone.[215] Generally, a Brownstone is identified by its narrow rectilinear form, frequently topped by a flat roof, and either finished with brickwork or constructed with brown brick. The Whitney Brownstone's all vary in style, proportion, and scale. A Brownstone, in fact, can be of any style: Neo-Grec, Neo-Renaissance, and even Neo-Georgian, as identified in the Upper East Side Historic District Designation Report: Volume II. These buildings are not defined by a period in time or a particular style of architecture, gives them more flexibility in being identified as a Brownstone. The defining element for Brownstones that remains unchanged is the repetition of architectural features.[216]

While all of the Whitney Brownstones have changed throughout the course of the decades, one was altered beyond the conventional definition of what a Brownstone is. This Brownstone, 943 Madison Avenue, was sacrificed for every design intervention proposed, so far, to expand the Whitney Museum. Unlike the CaixaForum's changes that enabled historical elements to be perpetuated, this Brownstone was stuccoed over and removed of all distinguishing Brownstone features, most importantly, the brown stone. Arguably without

214 Pogrebin, Brownstone That Has Eight Lives to Go.
215 Nelson, Preservation Brief 17.
216 Landmark Preservation Commission, Upper East Side Historic District Designation Report.

brown stones it could no longer be identified as a Brownstone. Since these buildings have been altered throughout the course of their existence, the question needs to be proposed: What features cause a building to continue to be considered a Brownstone? Would a Brownstone, therefore, still be considered a Brownstone if a substantial addition was built on top of it? Alternatively, is the retention of the facades defining elements enough? In the end these questions will have to be asked to the constituents of the development, and interpreted by the architect.

The objective here is to identify a system for giving up elements on the Brownstones. This system is based on the deemed levels of significance defined by the constituents of the development, which will be categorized into three basic levels: 1) Critical to the successful retention of the Brownstones, 2) Significant but Modifiable, 3) Not Critical to the successful retention of the Brownstones.

Critical

A Brownstone is by definition linked to the materiality of its façade. This most significant and critical element of the Brownstones should be retained for street presence, as the front facade of a building is the most relatable element that pedestrians and users identify. The street presence of the Brownstone is defined, as well, by the vertical rhythm of the windows, and the repetitive nature of other elements. Without the chain of windows uniting a series of buildings, the integrity of the Brownstone could be compromised. While maintaining the façade of the Brownstones is critical, maintaining the height of the Brownstones is not as critical, because Brownstones often vary in height by two to three floors. For this reason a rooftop addition is a viable form of growth.

Traditionally, architects have approached adaptive reuse by retaining the most publicly visible features, the façade. A practice commonly referred to in the design community as facadism. However, there will be instances where it will be desirable to obscure some of the existing features to develop a relationship between the existing building and the addition, as was done with the roofline and façades of the Royal Ontario Museum and façades of the Military History Museum. When enclosing existing features it is preferable that the obscured features be visible within the interior of the new extension. Or in some cases, it is acceptable for the new structure to intermittently obscure repeating existing architectural elements, in which case, visitors can infer the missing information.

Significant but Modifiable

Elements of the buildings that do not contribute to historic significance and which are not seen or experienced by the public can be altered to meet the needs of the new program. Such elements of the existing building would be the exterior back walls that are facing the alley, the firewall, and the partiwalls.

The back facades of the Brownstones exterior have often been overlooked in past proposal intervention to the Whitney Museum. While the back exterior walls of the Brownstones have distinguishing characteristics that help people identify them as Brownstones, the lack of visibility from the street implies that they are less historically significant to the community. While the Landmarks Preservation Commission demanded that the 941 Madison Avenue be reincorporated in Renzo Piano's proposal for it to be approved, there was no real concern or objections raised in the removal of the majority of the back facades, which implies their minimal significance. There was, as well, no mention of any of the back walls' defining features in the Historic District Designation Report. However, in both the proposals made by Rem Koolhaas and Renzo Piano a portion of the back façades were retained, which says that the back facades have some value. In the event that the back wall has to be altered in any way it should be done in a manner that retains or redefines the repetition of the windows, because the windows define the back walls with the same rhythm as the front facades. There are successful examples that can be referred to as setting precedence. Arguably, the CaixaForum has proven that a building can still read as it once did after removing the original interior, the roof, and even the base of the building. The CaixaForum left just enough informative elements to define what was taken away. For example, the roof of the CaixaForum is implied by its parapet roofline, and the base of the building by the outline and the void.

In many cases, the most innocuous feature can be one of the most significant. The large solid dividing firewall, characterized by its massiveness and simplicity, between the Whitney and the Brownstones has evolved throughout the decades from a utilitarian element for fire safety into one of the Whitney's most defining features. The simplicity of this wall, with no visible openings, has to be maintained; however, it is imperative to make new openings in the wall for the sake of the program. This wall, then, like the back facades, is also categorized as being Significant but Modifiable.

The partiwall (between the Brownstones) and structural walls linked to the exterior spatial relationships of the Brownstones have also been deemed significant but modifiable. Without these partiwalls the understanding that these Brownstones were once composed of nine buildings, now six, would be lost. These partiwalls also define the long narrow interior space that is often indicative of Brownstones.

Changes of these walls would be warranted in circumstances where meeting the programmatic requirements of the museum would be prohibited if the wall in question were not changed. If the spaces cannot fulfill the program in a valid way that promotes ease of circulation, existing features should be modified where minimal historical loss will incur. Modified walls should be removed or parts reinvented to create a new way to experience the existing wall. While reconstructing portions of an existing building will be expensive, the reconstruction and relocation can contribute to the overall historical experience of the building.

Not Critical

The fate of non-critical elements of the existing buildings can be left to the discretion of the architect, preservationists, the community, and the owner. While there are many cases were the interior layout is the most significant and defining element, these Brownstones can be perpetuated without the retention of the organization of the interior walls. Arguably, the interior layout is the hardest to maintain; the interior is the space where the occupants spend their days and where they make the spaces into their own. Retaining many interior features, for instance, like stairs, doors, and walls is difficult because new uses often require large spaces, which call for eliminating walls and doors, and, in some cases, stairs. While doors are often salvaged and reused in private homes, walls and stairs are lost. The information on the interior of the Brownstones, gathered from existing floor plans, identifies a few significant elements that warrant retention.

It can inferred that the interior walls that divide the use of the space have not been deemed significant; since there was not an outcry from the community that the past proposed interventions only retained the facades of the Brownstones. It should be noted that the interior spaces are defined by the context of how they were used, their furnishings, utilities found in the space, and their spatial divisions. What is a bathroom for instance, without a toilet, sink, or shower? It is a closet, a booth, or a really small room. The relationship between space and function is why the Tenement Museum is so successful

because everything about a period in history has been restaged. The interiors of the tenement museum Brownstones were not simply left as empty rooms without context. In the case of the Whitney Brownstones, the interior spaces are not embellished with ornate finishes, nor do they create an impression of a time and place, and the new program will not have a need for the existing interior walls.

Summary of the Process

In the case of these Whitney Brownstones, the value system has determined that the front facades are the most important features that must be retained. The back facades can be changed to the extent that the key historical features are retained. The interior, for lack of significance, should be retained as a glimpse into the spatial organization of the Brownstones. Additionally, this value system will ensure the successful accommodation of the museum's program and ease of circulation.

To determine the level of significance and system for giving up existing features:

1) Generally, visible features are the most significant.

2) Confronted with the need to alter existing features deemed significant the intervention should retain elements whether they be implied or echoed.

3) Ensuring the clarity of the program's mission is critical.

4) The built environment is ephemeral; there should be no element above being altered.

Preserving the overall identity of a building at the same time allowing it to grow appears to be an achievable goal. Striking this balance is not easy and is the focus of this dissertation.

Sequence of Intervention

Preservation Brief 17 used a sequence of a telescoping approach to assessing the existing condition of a building. This same approach can be expanded when determining how to integrate an addition to an existing building. This telescoping approach first explores all options of creating an intervention with minimal impact, and then considers alternatives that will require the physical alteration of existing features. When integrating an addition the intervention should always start with examining existing openings and voids.

Existing Openings and Voids

It is important to review the existing opening and voids to identify access points. The circulation of a building is critical and will likely require the most changes to be made. Existing openings and voids, such as existing doors and large windows that can handle the capacity of the new program can be utilized. This will result in minimal impact to the existing fabric of the building. When looking to utilize existing windows, it would be desirable to use windows that have been repeated, so the users will be able to appreciate the original appearance of the windows' design and the change that was made to accommodate the new program. It is always desirable when changing elements for there to at least be one left in its original condition (if not all). When looking to utilize the voids found within a building, there is even more of a need to be cautious in the overdevelopment of the space. Examples of such voids would be the double height space in the Whitney on the fourth floor and the mezzanine space in 935 and 933 Madison Avenue. While these spaces could be in filled, it would take away from the overall spatial experience. The utilization of these spaces is not recommended.

On the other hand, when utilizing the voids found between two or more buildings that are being united, it becomes less of a volatile task, because the spaces between buildings are often forgotten spaces. While the spaces in-between existing buildings are used to provide natural light and ventilation, these needs can be met in other ways.

Solid Plain Walls

When looking at utilizing a solid existing wall, there are several questions that have to be posed: is the plainness of the wall significant? Is the space that it is defining important? If no, then there is a question on how and where to place the new opening. In some cases, it is prudent to place the opening where the plainness and the solid appearance of the wall are maintained. For instance, the opening can be placed in a corner where it will be obscured by another wall. When simply trying to hide the opening is not an option, one can take a philosophical approach by cutting out the opening and offsetting the cut out portion. This approach of looking to use the existing openings first, and then the walls with no openings, is to be decided in conjunction with the value system developed above.

With the features of the Brownstones identified and a hierarchy in the value system established, the design process for the expansion of the Whitney Museum can commence.

Step 4: Develop a design

Even with a value system in place to instruct the design, the beauty of architecture is that there are infinite possibilities when it comes to how an addition can be integrated with an existing building.

In this step, the value system ascertained from the community and the programs needs will inform the design development. If anything the past attempts to develop the Whitney illustrates that there is not just one solution for any architectural quandary, thus there should not be one rigid guideline or committee determining the fate of an entire community. The design proposal should be able to be influenced by a place, time, and the culture of the area in which it is being built.

Like with any other problem an equation of sorts is required. Rather than an equation structured around a strict predetermined approach, this approach is based on allowing communities and users to design their building based on factors relevant to them, to ensure that the building is reflective of the moment. For the approach being suggested here the equation no matter how formulated will always require an introduction of a new component. A new component that is not of the existing context, perhaps a derivative of the existing, a reference to the new program, or even a projection into the perceived future of the place that has been ascertained from the community.

Equation

The equation for developing a design is not an exact science, but there are several variables that should be equated when considering the design of an addition. When working with an addition made to a historic building this equation can go something like this: dominating design features of the existing building + the consideration of the users + surrounding context + and code and zoning factors+ interjection of a new architectural language, the ratios of which will vary according to the values of the intended users.

This equation was simplified utilizing the input from each component; it is not necessarily proportionate as suggested in the equation. While in some cases it might. When determining how much of building “A” verses building “B” should be kept, an architect will have to refer to the analysis of the buildings as well as the objectives and needs of the stakeholders. For there is no real prescribed ratio of old to new, thus it must be based on

the value system derived by the community. It is the responsibility of the architect to take the considerations of the community and the existing building (or buildings) and determine what the predominant elements are that should be perpetuated in the addition.

The expansion of the Whitney creates some unusual circumstances rather than simply developing a relationship between an existing building and an addition. There is a need to unite two basic architectural styles (one of which is composed of numerous variation in styles). Thus in reality it is more like ("A" the Whitney) +("8B" the Brownstones) + ("A/8B+C" the addition)=the new Whitney. The value of each of these parts depends on the value attributed to each component by the community, Whitney, and other such parties with invested interest. Depending on where, to what, and the social condition an addition to an existing building might be more conservative or more avant-garde. Numerous variables will influence every project on every block.

When developing an equation for integrating, it is important to note the communities and users' expected role of the existing building (or buildings) and the role of the addition. Even when developing the most conservative addition it is critical to understand that the addition should not be a facsimile of the original building. The addition needs to primarily address the evolving needs of the users. Its secondary function is to serve as a medium to unite the disparate existing buildings, which can be done by either identifying similarities or celebrating the differences.

The addition should not be the antithesis of what the Breuer building and the Brownstones would look like as one building. Nor is it strictly a matter of what a Brownstone or the Whitney would look like today, as much as it is what these buildings have become and where the addition will take them. In this process, the addition has to bring something to the table other than developing a relatable parti model of the existing buildings for today's users.

Using the information gathered from the design analysis helps one rationalize how to get the existing condition (A+B) to the proposed future (A/B+C)= addition (while "C" will always be of this Equation "A/B" will not necessarily, this will be illustrated using the case studies). The final product might appear as this equation (A+B+(A/B+C))= whole.

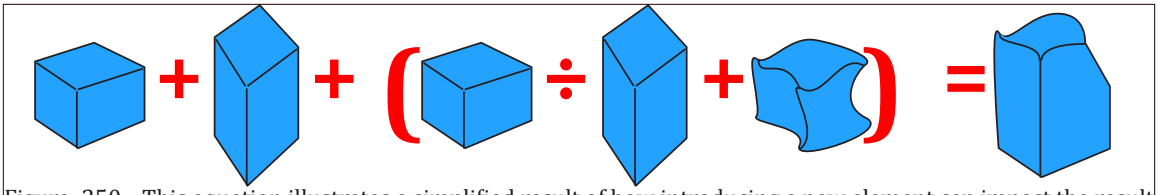


Figure: 250. This equation illustrates a simplified result of how introducing a new element can impact the result of the design. The equation does not necessarily result in a foreign design, but rather a progression of a communities values. Unlike the case studies this equation is suggesting how an architect can develop a relationship with the existing building.

For those ultra conservative areas, the variation can be one major intervention or a series of small ones. In an ultra conservative area the equation for an addition might minimize the impact of the introduced vocabulary by having a majority of the introduced vocabulary influenced by the existing condition.

A+B+C/AB= the whole

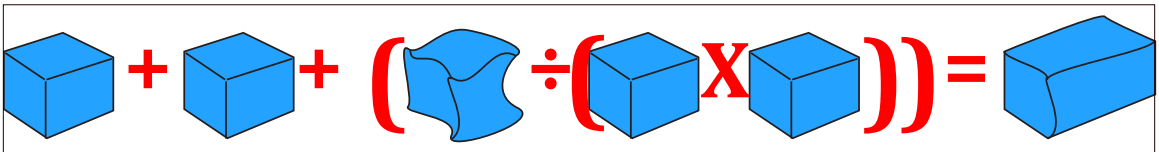


Figure: 249. Even with a conservative intervention there should be the introduction of a new design principle, whether it be through form, materiality, or any other deemed appropriate intervention. Every addition should project a progress of the built environment.

As the case studies illustrate sometimes these additions do not develop a literal relationship with the existing context. Sometimes the additions are more an effort to instill a new program in to an area, as was the case for the Contemporary Jewish Museum, the ROM, the AGO, as well as others. This equation involves uniting several different disparate components into an operating whole, where each component simply represents the period in which it was built.

A+B+C= the whole.

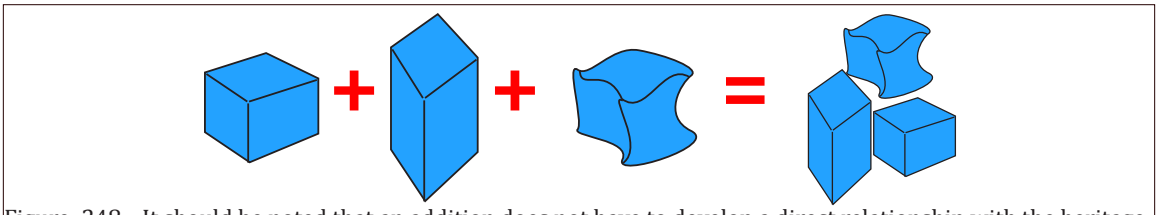


Figure: 248. It should be noted that an addition does not have to develop a direct relationship with the heritage building being added to. As has been demonstrated through the case studies. Often the intent of an addition is to root a program into a place through the architecture of the building it occupies.

Existing Building Reference Additions

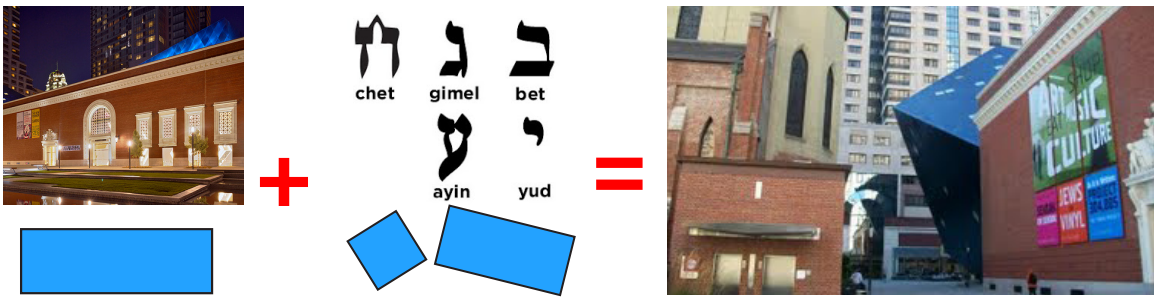


Figure: 254. The existing power station, the blue shape illustrates the base form of the original building. (Image Source: http://storycorps.org/blog/storybooths/san-francisco-california/tales-of-the-city-storycorps-san-francisco/)

Figure: 255. The reference for the addition in this case is the Jewish culture and life, the blue shape illustrates the base form of the addition building. (Image Source: http://cjmvoices.blogspot.com/2010/01/this-post-brought-to-you-by-letter-peh.html)

Figure: 256. This image shows the resulting juxtaposed design of the Contemporary Jewish Museum. (Image Source: http://www.ams-net.org/sanfrancisco/sf-info.php)

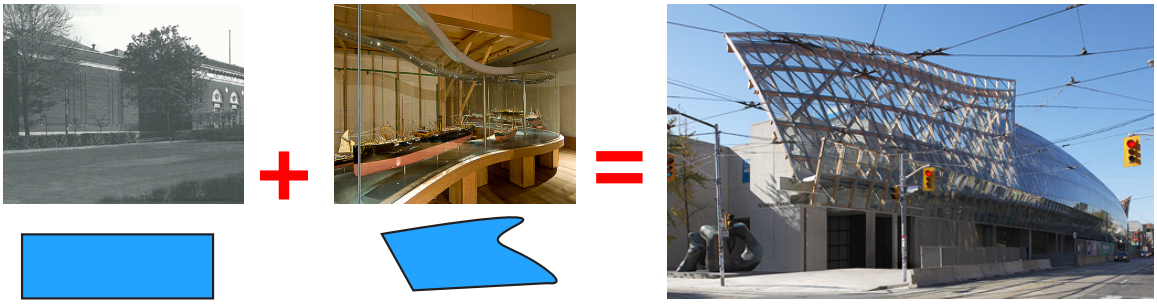


Figure: 251. The AGO's first major addition, the blue shape illustrates the base form of the original building. (Image Source: http://artmatters.ca/wp/category/transformation-ago/)

Figure: 252. The reference for the addition in this case it was a nautical inspiration based on a substantial donation, the blue shape illustrates the base form of the addition building. (Image Source: http://artmatters.ca/wp/category/transformation-ago/)

Figure: 253. This image shows the resulting juxtaposed design of the AGO. (Image Source: http://www.ago.net/transformation)

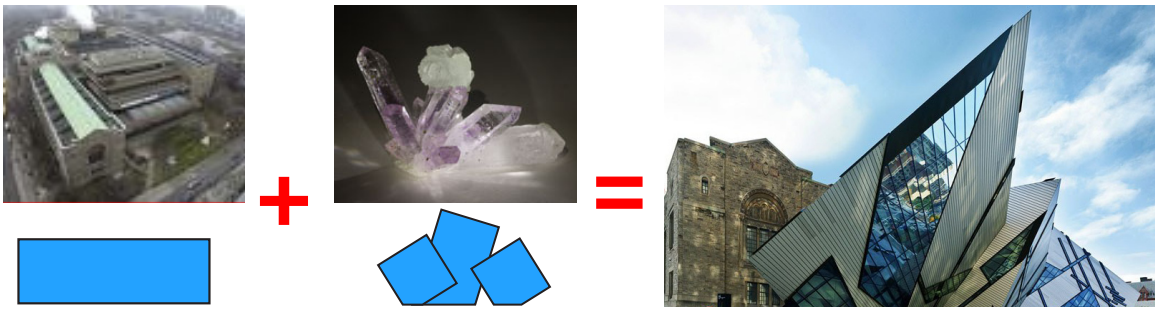


Figure: 257. The ROM before the Lee Chin Crystal, the blue shape illustrates the base form of the original building. (Image Source: http://www.cbc.ca/news/arts/artdesign/story/2007/01/18/teck-rom.html)

Figure: 258. The reference for the addition in this case it was extensive crystal collection that inspired the design of the addition, the blue shape illustrates the base form of the addition building. (Image Source: http://www.cbc.ca/news/arts/artdesign/story/2007/01/18/teck-rom.html)

Figure: 259. This image shows the resulting juxtaposed design of the ROM. (Image Source: http://www.cntraveler.com/arts/2008/04/New-Seven-Wonders-of-the-World)

The point is to embrace where an area is going socially as opposed to creating artificial limitations on the design of a site.

While all of the case studies take a cerebral approach to integrating an addition, there is still a way to develop a literal relationship between an addition to an existing context, while still instilling a new vocabulary if the constituents desire a less drastic transition into a projected future of a place. This approach of drawing reference can still result in an abstract addition, where the relationships becomes more apparent upon a closer look.

When pulling in different factors to create a third, the two should not equate to 1+1=1, because it is a well known fact that 1+1=2. A designer should not take a square plus a square and expect it to equal a square, for it would equal a rectangle. Adding two of anything together should result in a third. When put into the context of this argument this concept is to reinforce the need and natural occurrence that integrating elements together should result in something other than what it started out with. This is not even a matter of aesthetics; it is a matter of allowing the built environment to reflect the changes of a place's social and cultural values, by enabling architectural variation in the built environment.

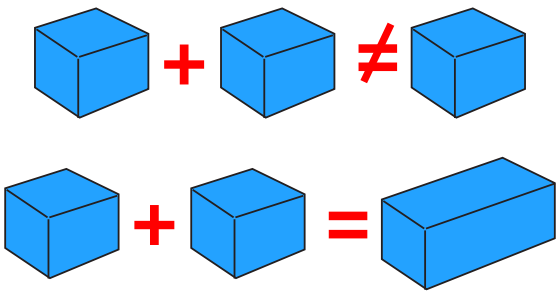


Figure: 260. The two equations above are graphic representation of how two squares should never equal a square, fore they will equal a rectangle.

While the argument might be made that dividing two numbers together one can get the same number: 1/1 = 1, this will only occur with 1, which would result in a dim undistinguishable future for the built environment. This is why this proposed process is requiring the interjection of a new architectural vocabulary. So no matter how the equation is formulated the result will be something new.

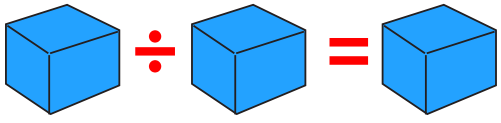


Figure: 261. The equation above are graphic representation of how dividing two squares will result in a square, but only squares.

If buildings are built to last they must say something about when it was built-- other than always requiring subtle variation, in an addition. Note when Breuer designed the Whitney, he first determined what he was not designing. The addition to the Whitney is not a building built in the 60s, nor is it a building that was built near the end of the 19th century.

It is clear that the argument being made here is that adding two squares together should never equal another square. While it can equal a rectangle, why leave the equation or the future of the built environment solely to such mild and uniform changes? An architect can approach the design integration of an addition to a heritage building in several ways.

Possible Design Approaches

In some cases the relationship can be developed based on what the original building represented when it was built, what it represents now, and what the changes that occurred along the way mean. Throughout the decades, the understanding of what the building was conceived as and what it is understood to be has evolved. So when extracting elements from existing building to create a third will naturally allow a new vocabulary to emerge, the design process is only restricted by the design expectations of the invested parties. While in more conservative areas the hybridization of the existing structures may be enough change, it is important to stress that the design of the new building should never be compromised. The addition must always bring something to the table.

Arguably, additions (or any new building for that matter) should represent the architectural principles of the period. Designing an addition that is in keeping with current values, while developing a relationship with the existing building is where the paradox occurs. How can an addition do justice to the existing building, while still projecting the architecture of tomorrow with the design principles of today?

What are the roles of the existing buildings? It is the existing building that has established roots and must reinforce its past identity.

What are the roles of the addition? The additions purpose is to unite the past with the present and future. The addition's relationship to the heritage building can/ should be an abstraction of the past and project the future needs of the users first, then the future of the place.

Every circumstance is different, there is not a prescribed pace in which change must occur, but change should be allowed to take place as needed. Whether the change is drastic or subtle is to the discretion of the community. For some places, this interjection will be modest, while others, the changes will be substantial, and still others the projection will be profound. Generally, larger metropolitan areas will undergo more drastic changes because they are at the epicenter of today's cultural forefront. However, it is still imperative that there be an introduced language exhibited in the addition. On the extreme spectrum of this approach the addition can be a pure representation of the projected future of a place, allowing the existing buildings to represent the past and the addition to represent the now and a potential future; as is the case with many of the case studies presented earlier. Sometimes additions are simply statement pieces that are intended to develop a relationship between the new program and the place.

Sometime too much value is associated with what exists, versus what is needed. This is not to undermine the importance of retaining the existing building, but rather to equalize the importance to satisfy the programmatic needs of the development, the evolving needs and expectations of the community, and the historic relevance of retaining the existing buildings.

When developing an addition with an objective to develop a relationship, which is often done using more than one point of reference to do this and develop something unique. An architect can develop a new relationship between two different architectural systems whether it be the massing of one building and the fenestration of another. When uniting disparate parts it is often needed to develop a relationship between unrelated elements, in relating these elements an architect will be able to unite the disparate parts while developing a new vocabulary.

Adding to one building

Even if the project only involves the addition to one heritage building, this concept of drawing reference from more than one source can still be applied, because in the end the addition is being introduced to the surrounding urban fabric. When selecting an additional reference one should select something either currently contributing to the existing identity of the area or is desired by the new program to be rooted to the area. For example: the CaixaForum drew reference to the surroundings need for green space when designing the outdoor gathering place.

Marrying disparate elements

When working with two or more buildings an architect is working with two givens, but there is still a need to interject an external factor that influences the design of the addition.

The two existing buildings provide the information needed to develop a relationship with the existing context, enabling the architect to develop a reflection of what is there; anchoring the addition to the place. To develop a reflection of the existing context, an architect will likely extrapolate dominating features from both. This can be done by selecting comparable or contrasting elements and figuring out how to unite the two elements. The external factor is the interjection of a new architectural vocabulary that represents the now and future of a place (in keeping with the time).

In the case of the Whitney there are "like" elements both buildings are based on rectilinear forms, one more cubed and the other rectangular. Another similarity is that the base form of the Whitney and the Brownstones are a product of subtraction. There are also many dissimilarities, the Whitney is based on asymmetry, while the Brownstones are defined by their similarities. In the Whitney there are very few elements that repeat; it is defined by the few unique elements that articulate the simplicity of its form, whereas the Brownstones are almost equally defined by the repetition of its elements as it is by its symmetry. Any one of these elements can be used to develop a relationship between the Whitney, Brownstones, and the proposed addition.

When considering how to integrate a new vocabulary in the design of an addition, it is important to note that not every design decision will need to be infused with a new vocabulary. It is acceptable to use what exists in the original building in moderation. Incorporating one or two notable new elements should be adequate.

How does one abstract? The next few pages will cover potential ways to approach combining existing building to develop a third, the examples will range from conservative to avant-garde (metaphoric).

Material

All of the case studies used materials that indirectly relate to the existing buildings through contrast. As seen with the case studies there are many approaches that can be taken when selecting a material for an addition. While for some the selection might have little to no relationship there are often ties based on color theories, contrast, or some theological bases.

Generally, architects will refer to the material of the building being added to by selecting the same material or a similar material. However, with a larger selection of materials and color available there are more ways an architect can develop a relationship with the existing building. Whether it be color, texture, or even the associated value of the material; even when selecting color as a means to develop a relationship there is more than one approach. For example, one can use colors from the same palette, complimentary colors (or different color theories), or even neutral colors. Commonly the selection of a material will be based on the combination of several factors.

When looking at the Whitney it is predominantly concrete covered in pink granite that has been linked to the Whitney's identity. The proportion of the granite tiles and its relationship with the overall portioning system of the Breuer building, makes it evident the significant role that materiality can play in the overall design of a building. The tiles have attributes that contribute to the identity of the building; attributes such as color, texture, and scale. The same can be said about the predominate bricks on the Brownstones. It would be prudent to develop a relationship using materiality.

The various approaches on how to develop a relationship are endless. For clarity, several different approaches have been illustrated on other ways to select material. The first two examples will illustrate approaches using the existing materials, and how one can go about creating variation. The first example uses the scale and portioning of the existing materials, suggesting that one can use the scale and portioning from the Brownstones over the Whitney and the Whitney's over the Brownstones. The second example is suggesting that an architect can take the dominating scale and portioning of the one building and marry it with the color of the other. While there are more possible approaches that can be identified, the color, texture, and associated value of the two buildings have been selected to develop a relationship between the existing buildings for this design study.

Materiality Precedence Studies

Existing material

Additions material

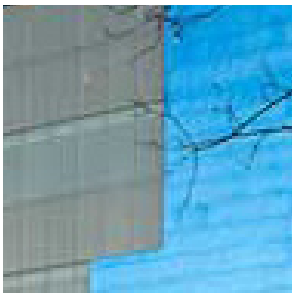


Figure: 263. The AGO employed color and texture of the material to develop a relationship with the existing building and the addition. Additional a strong seafaring parti model led to the selection of blue which picks up on the organ tones of the Grange.

Figure: 264. The Tate uses the contrast in opacity to develop an inverse relationship; the transparency of the addition in contrast to the opacity of the brick. The Tate also used the style of the addition as a tool to develop an indirect relationship between the past and the present, by contrast of the industrial brick against the sleek contemporary texture of the fogged glass.

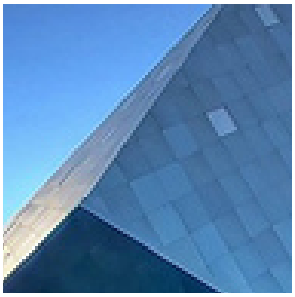


Figure: 265. The Contemporary Jewish Museum used blue steel to accentuate the dominating orange color of the bricks, which according to the color theory are complementary colors that accentuate each other making the colors more vibrant.

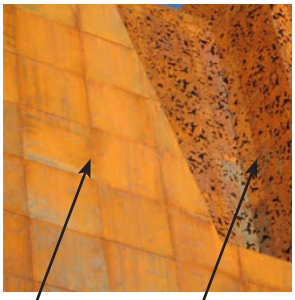


Figure: 262. The CaixaForum also used color and texture to develop a relationship between the power station and the addition. The hues of the brick were extracted, which led to the selection of the rusted iron. The texture of the bricks porous appearance was reflected in the perforated rusted iron.

Materiality

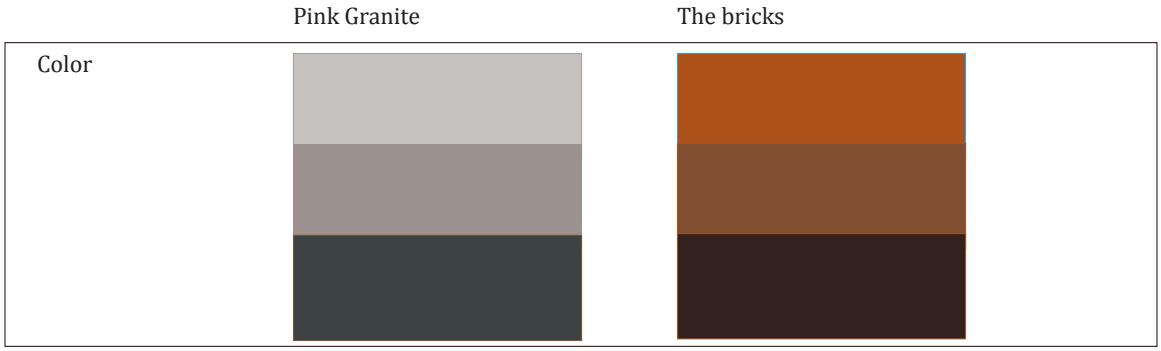


Figure: 266. The colors found in the Pink Granite.
Figure: 267. The colors found in the Brick.

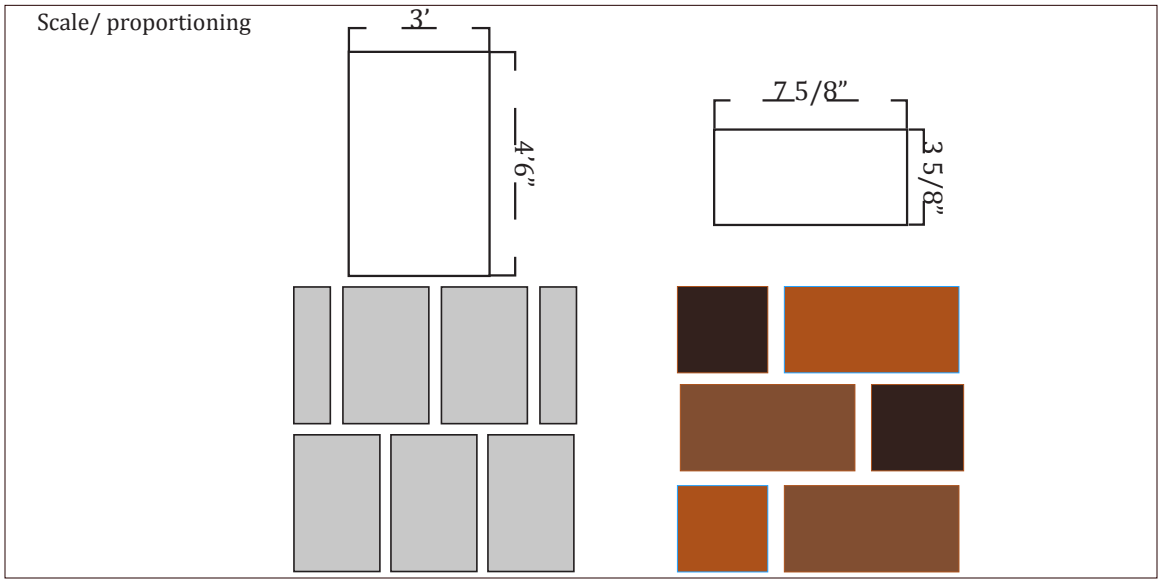


Figure: 270. Vertical as a unit, Horizontal as a whole
Figure: 271. Horizontal as a unit, Horizontal as a whole

Figure: 268. Smooth (Image Source: http://www.rstcompany.com/html/list-16.html)
Figure: 269. Course with a semi porous surface (Image Source: http://detroit.metblogs.com/2006/07/31/brick-how-i-have-missed-you/)

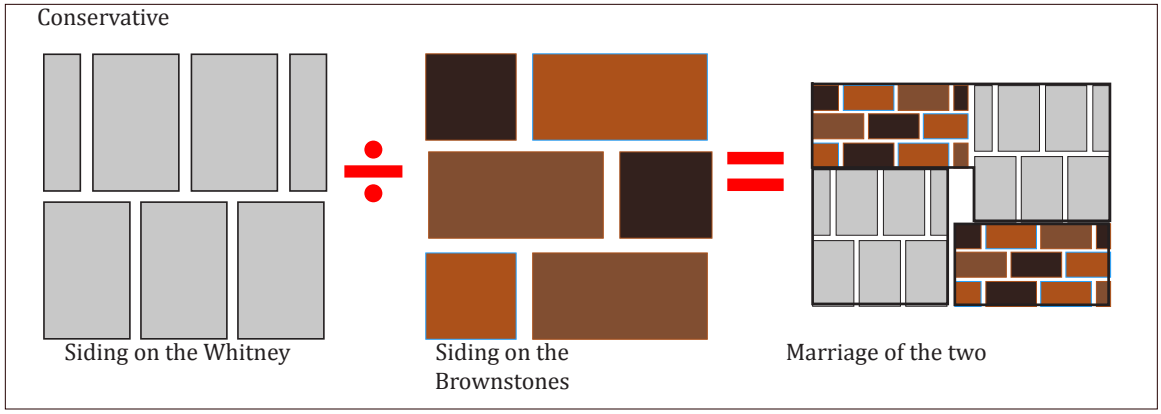


Figure: 272. Taking the scale, patter, and materiality of the existing buildings and apply the Whitney's materiality over the brownstones and the bricks of the brownstones over the Whitney. Essentially reversing the relationship of the scale and proportion of the material.

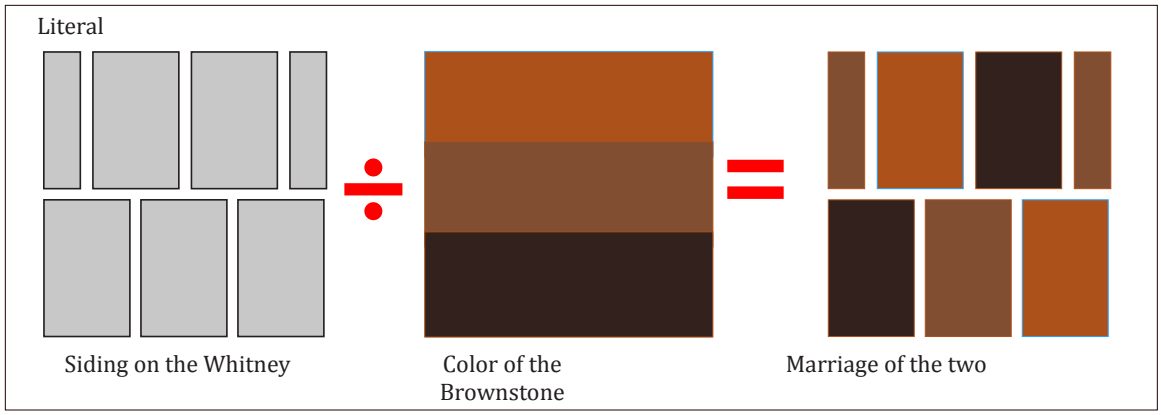


Figure: 273. Literal example would be perhaps taking the dominate scale and the dominate color, and marrying the two.

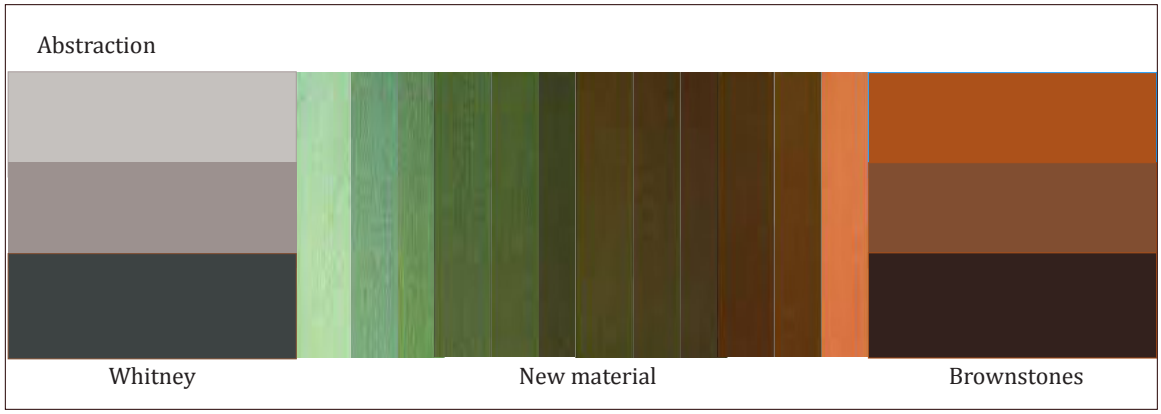


Figure: 274. Given the Whitney and the brownstones are of contrasting colors a possible approach to addressing the addition is to unit the material through color theory. The color of the brick and the color of the copper existing in the same color palette. The inevitable color of the copper is a complimentary of the hues found in the brick and the pink granite. By taking this approach the introduction of a new element that is neither the Whitney nor the Brownstones has been accomplished. Note: not even design decision has to introduce something new.

The same concept has been used in the selection of copper for this proposed addition to the Whitney. The copper was selected for several different properties. Not only is it a material that is prevalently used for roofing buildings in New York City, it is a sustainable material (that is known for its longevity and the relative ease in which it can be recycled). Additionally copper has been selected for its wide range of color palettes available ranging from the color of copper to various shades of brown and patina greens (that becomes a pale shade of green). Another attribute that led to the selection of the copper is the fact that the copper itself is expected to change throughout the decades. To an inevitable range of greens, once this aging process is complete the green tones of the copper will pickup on the reddish tones of the Brownstones and the red undertones of the pink granite that faces the Whitney Museum. So through color theory a relationship will be developed between the Brownstones, the Whitney museum, and the addition (which is used as a medium to unite the disparate parts). In the case of the Whitney the color of the two existing buildings is an apparent relationship in color with the Brownstones the texture of the copper will be more related to the smoothness of the granite.

When looking at developing a relationship between the associated values of a material, the design connection becomes more metaphoric and subjective. The associated value of a material is in many ways connected to the experiences of the users. For example, the pink granite of the Whitney can be associated as a rich traditional material, whereas the brick of the Brownstones can be either a rich or a humble traditional material. Both brick and granite are traditional material related with the old world, as is copper; only copper has been rediscovered and modernized.

Fenestration

None of the case studies developed a relationship between the fenestration of the existing buildings, so this section will show how a relationship can be developed. The case of the Whitney and the Brownstones will be used to illustrate this approach. Several auxiliary options will be covered, ranging from conservative to abstract. Taking the analysis done earlier for both buildings one can identify the defining characteristics of the doors and window of the existing structure, in this case the windows. For the Whitney the windows on Madison Avenue are square, where as on East 75th Street the windows are rectangular. The dominating windows are three dimensional, with angles, and are asymmetrical. For the

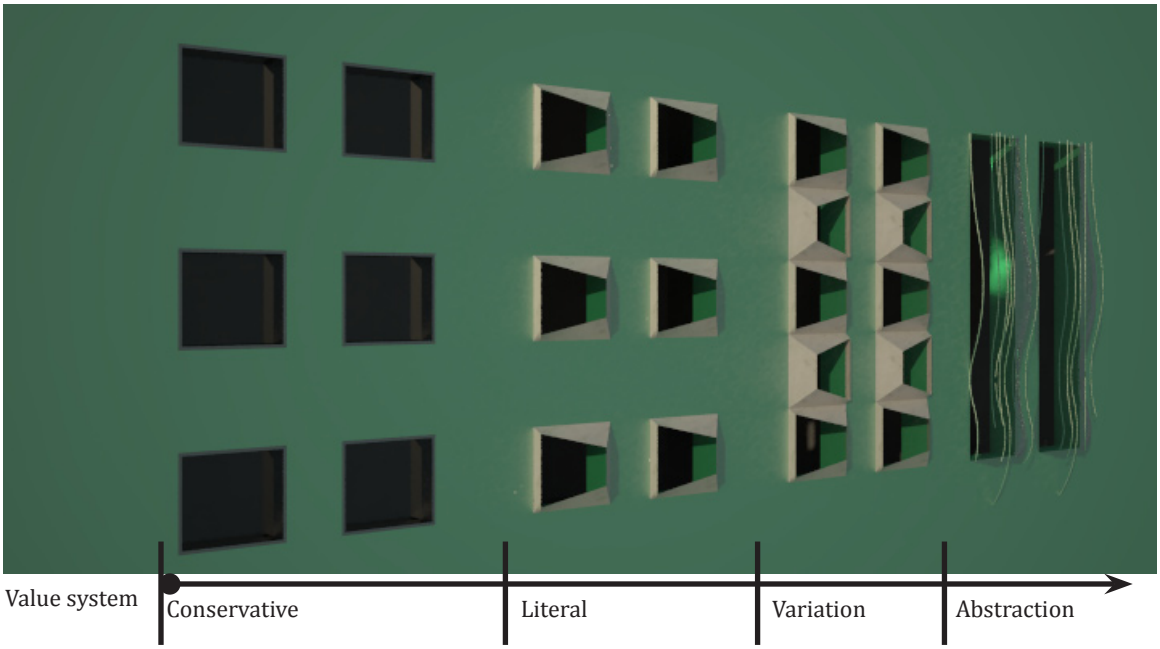


Figure: 275. Spectrum ranging from conservative to contemporary.

Brownstones, the windows are rectilinear, equally distributed, and repeated. Being that the Brownstones have no visual or proximity relationship with East 75th Street, the rectangular shape of those windows will not be taken into account when developing a relationship.

Examples on possible ways to integrate more than one element together, using the existing portioning system of the building, to create an addition.

Alternative one: is a possible conservative approach to developing a relationship between the existing building and the addition. In a modest approach the designer might choose to forgo, the overall geometry of the Breuer building's windows. In this case the geometry has been simplified into its most basic shape the square. The square of the Whitney then replaced the rectangular shape of the window. Doing this developed a relationship with both the rhythm of the fenestration found on the Brownstones and the geometry found in the Whitney.

Alternative two: a more literal approach. In this approach it is suggested that the form of the Whitney windows can literally be plugged into the Brownstones row and column system of repetition. This will create an unmistakable relationship between the Whitney and the Brownstone.

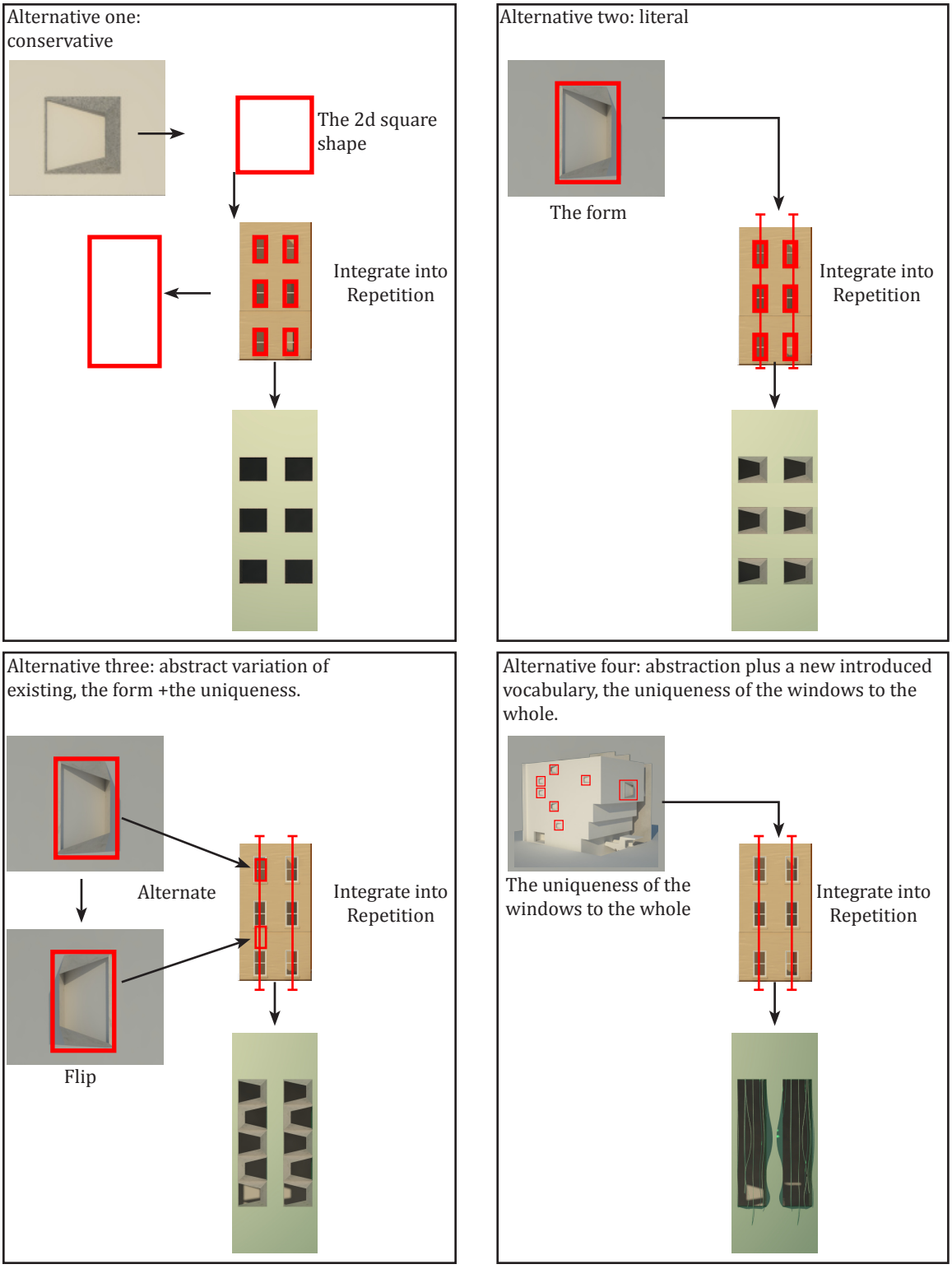


Figure: 276. Breakdown of the process in which the design of the fenestration were derived.

Alternative three: similar to example two, except in this case a variation in the integration of the Whitney windows has been introduced. In the previous two alternatives, the Whitney window literally replaces a window in the column row system of the Brownstones. However with this alternative the intermediate rows of spacing between the Brownstone window will be replaced with a mirror image of the Whitney window. Creating a relationship with the form and uniqueness of the Whitney, plus the rhythm and symmetry of the Brownstones developed this approach.

Alternative four: taking the juxtaposition described above and introducing a new language which is the premise of this research. Taking the uniqueness of the Breuer building, the repetition of the columns of window minus the row of windows, and introducing the curve (a new vocabulary) a new fenestration system for the addition has been developed. In this case, the addition will introduce the new vocabulary of the undulating surface of the glass fenestration, which has been selected to break up the mass of the addition. A variation of this approach will be used to develop an addition for this design project.

Altering the Existing Fabric

In some cases, an architect will be confronted with a programming issue that can only be resolved by altering the existing fabric of the heritage buildings. In the case of the Whitney there is a need for significantly more circulation than the Brownstones can handle, while still meeting the needs of the program and retaining the primary spatial relationships. Thus, the steps listed below identify possible approaches on how an architect might consider altering the existing fabric to meet the needs of the program.

The first possible approach to integrating a new circulation would require the removal of a window on each floor and the enlargement of the opening. The second option would be to remove an entire row of windows. The third approach would be to remove an entire portion of the back wall and recreate it elsewhere. The third approach has been selected as the best solution that would enable the retention of primary interior spatial relationships by manipulating the back exterior wall and placing the circulation outside of the Brownstones in the existing forgotten space.

Taking this approach has accomplished several things: it alters the rhythm of the back wall in a way that still enables visitors to understand how it originally looked, it provides needed room to accommodate circulation, and creates a way for visitors to

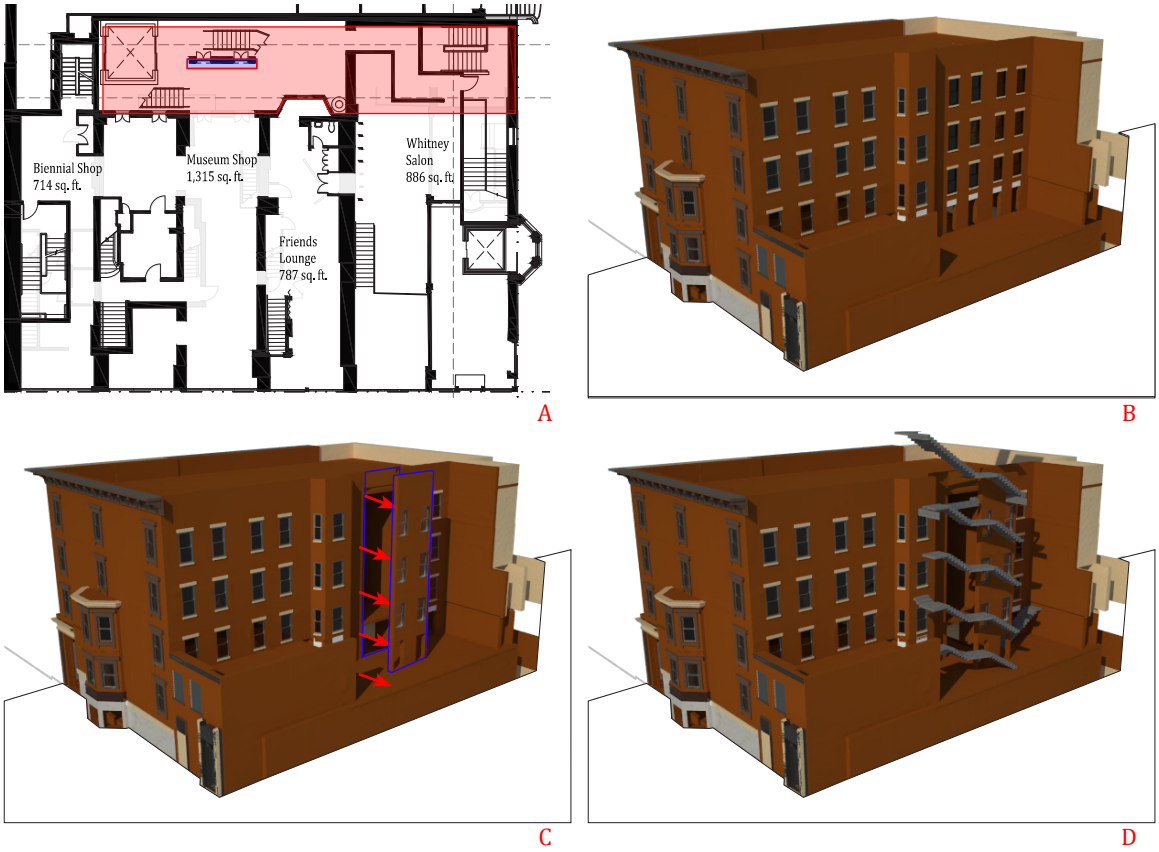


Figure: 277. A) Floor Plan of the Mezzanine: the red shade area identifies the void space where the new circulation for the extension is located. The areas identified in blue is the relocated portion of the wall.
Figure: 278. B) The existing condition of the Madison Avenue Brownstones.
Figure: 279. C) The proposed relocation of a portion of the back wall to enable a better flow of circulation.
Figure: 280. D) The illustration of the proposed wrapping of the circulation around the dislocated back wall.

Figure: 281. The rotating wall in Liverpool, design by Richard Wilson a sculptor. (Image Source: http://gizmodo.com/267081/crazy-rotating-wall-makes-you-wonder-if-you-are-crazy-too)

experience the Brownstones. When visitors are within the gallery, they experience elements of what a Brownstone is, and when they reenter the circulation core; they are able to see what the Brownstone exterior looks like.

This phenomenon can be observed in the CaixaForum and the Dresden Military History Museum. In the CaixaForum the stone foundation was removed, resulting in the appearance of the heritage building floating. The Dresden Military History Museum was a figurative gesture that resulted in an interesting spatial experience of the past and the present on the same plane. A more extreme example of this would be the rotating wall in Liverpool, design by Richard Wilson a sculptor. This rotating wall cost £450,000 ($887,490), and was only designed to be operational for a year and a half. This intervention was made to Yates's Wine Lodge building.[217]

Obscuring Elements

This design also addressed the concerns for obscuring existing elements, which is a phenomenon often observed in the case studies. Obscuring elements of the existing building (such as in this case the back walls and the portion above the bay window), enables users to gain a new experience of the existing building. While it is desirable to showcase the obscured element to the users, this is not always possible do to site restrictions, in areas were the building envelope is virtually maxed-out. Obscuring existing features can be used as a tool to integrate the addition and illustrate that there is likely a significant change to the interior of the existing building as well. There by rooting itself to the existing building as was done in the Moritzburg Museum, the AGO, and the ROM

Moritzburg Museum's outlook gave visitors the opportunity to gain a new perspective on the exterior wall of the ruins. For the AGO this phenomenon is only really perceptible from the interior in Walker Court. Having the heritage elements in the interior gave visitors an interesting and unsuspected surprise and also gave the visitors an ideal on what the relationship of the original building was to the street. The ROM offered the visitors several different opportunities to experience the enclosed elements of the existing building; some of the elements were showcased as elements in the ROM's collect.

217 Darren Murph, *UK sculptor designs rotating wall for Liverpool*, June 11, 2007, http://www.engadget.com/2007/06/11/uk-sculptor-designs-rotating-wall-for-liverpool/ (accessed October 26, 2012).

Design Solution for the Whitney

Seeing how one can approach the design of an addition while still drawing reference from the existing building, this section will illustrate how the design development of this proposed addition has been developed.

In this case, in addition to knowing what a Brownstone is, to appreciating the history of the buildings, and to respecting the value systems of the community, an architect would have to ask herself: what is it that she is designing. As Breuer asked when designing the Whitney, "What should a museum look like, a museum in Manhattan?" Breuer acknowledged, "Surely it should work, it should house its requirements, but what is its relationship to the New York Landscape? What does it express, what is its architectural message?"[218]

What is the architectural message that this addition to the Whitney will deliver? How should an addition be integrated to a building known for its "revolutionary approach to art museum design"?[219] Arguably, the integration of the addition should challenge the status quo, as Breuer did. The story told by the history of the Brownstones celebrates change, and now it is time for the Whitney and the Brownstones to change together.

This proposed design aims to illustrate that a building can grow while still being faithful to its past. The concept of this design proposal for the Whitney Museum is to create, through the juxtaposition of material, style, form, proportions, and space, a journey through time, to experience the convergence of the past, present, and future. The entire premise of the design is to integrate three stylistically independent buildings. The Whitney, the Brownstones, and the new addition are intended to represent the evolution of different periods of New York City's architecture.

Using the voids found between buildings and altering existing elements within the Brownstones will develop new ways to experience these existing buildings. The Whitney Museum proper would experience minimal changes, not because it is more architecturally significant than the Brownstones, rather because it was designed as a museum.

218 Stoller, *Whitney Museum of American Art*. 81-84

219 The Art Newspaper, Rethinking the Whitney, July 06, 2010, http://www.theartnewspaper.com/articles/Rethinking-the-Whitney/21119 (accessed September 25, 2011).

This design, the culmination of research covered in this document, will be structured around one underlining design principle, which is to promote greater variation between the old and new to allow the evolving built environment to tell the story of each generation through architecture. The argument is defended that the integrity of the historical fabric can be perpetuated even with the introduction of a drastic intervention by retaining the elements of the heritage building according to the value system of the community, and by integrating an addition that represents a new architectural language.

Most examples covered in the case studies strictly expanded outward, but given the spatial constraints of the Whitney Museum's site, the addition must be developed upward. Outward expansion will also occur to incorporate the five neighboring Brownstones. In fact, the site conditions are not very different from those of the CaixaForum. However, rather than razing surrounding buildings, as was done with the CaixaForum, this design for the Whitney Museum aims to integrate existing buildings into the expansion.

Integrating the Whitney with the Brownstones and adding a substantial addition with a contrasting, but complementary style will ensure that each of the valued elements retain their independent identity. The juxtaposition of granite, limestone, and brick that compose the existing buildings against the smooth various shades of patina paneling of copper and fogged glass elements of the new addition will renew attention to the old materials. The opacity and solidarity of the Breuer building and the Brownstones will be reinforced by their contrast with the transparency of the new addition. The non-linear form of the curved glass of the addition will stand in relief against the rectilinear forms of the existing buildings. The façades of the Brownstones are critical elements to the success of this exploration. In addition to developing a depth of variation in architectural form of the new building, and contributing to the evolving character of the neighborhood, maintaining the facades of the Brownstones is vital to ensure that the historical character of the neighborhood is perpetuated. In this proposed design project, the back facades that were removed in the past proposed interventions by Rem Koolhaas and Renzo Piano will be retained to prove that there are ways to keep the existing fabric while properly meeting programmatic needs.

The flat roofs of the Brownstones present a perfect opportunity to introduce a rooftop addition as a cap to the existing Brownstones. Spaces in between the existing Brownstones will be used for circulation. As discussed earlier, maintaining the Brownstones' facades and juxtaposing the old and the new will ensure that the Brownstones will still be

perceived as Brownstones. Making sure that each of the "buildings" can be read as separate buildings is crucial to the success of the expansion. However there is still a need to develop a relationship between what exist and what is being added. Taking reference from the geometry of the dominating form of the cube found in the Whitney was carried over into the Brownstones and the rooftop addition. So when looking at Madison Avenue the geometry of the square links the Whitney, the Brownstones, and the addition. On East 74th Street the rectangular form of each of the Brownstones has been extrapolated, into the addition. The variation in the height of the addition is a product of the scale portion of the relationship between 31 East 74th Street and the 33-35 East 74th Street.

The curved glass is the interjected element, which drew reference from the existing fenestration. On Madison Avenue the relationship with the fenestration and the curved glass was inverse, with the copper siding aligning with the fenestration. Whereas on East 74th street the curved glass is aligned with the fenestration, in keeping with the set of three above each of the Brownstones. Above the Whitney the stacking and aligning of the bridge and the large window was extruded and integrated into the rooftop addition over the Whitney.

The unique element above the Madison Avenue Brownstones drew reference from the vertically canted setback portion of the Whitney (located where the main stairs are located), which already has a relationship with the Brownstones. On East 74th Street, the back portion of the Madison Avenue Brownstones was used as a reference for the main circulation.

To ensure that each of the existing buildings is read as individual units, the rooftop additions have been treated as components. This proposed design will unite the unique elements and asymmetry of the Whitney, with the symmetry and repetition of the Brownstones. When uniting different elements there will often be one that dominates over the other, but when carefully constructed, a balance in the overall composition can be developed. For example how can one unite symmetry with asymmetry? In the case of this proposal the union is made possible do to the scale of the project and is achieved by the breakdown of the massing. By creating symmetry in the individual components, an asymmetry can be introduced when the individual components are united to create a whole.

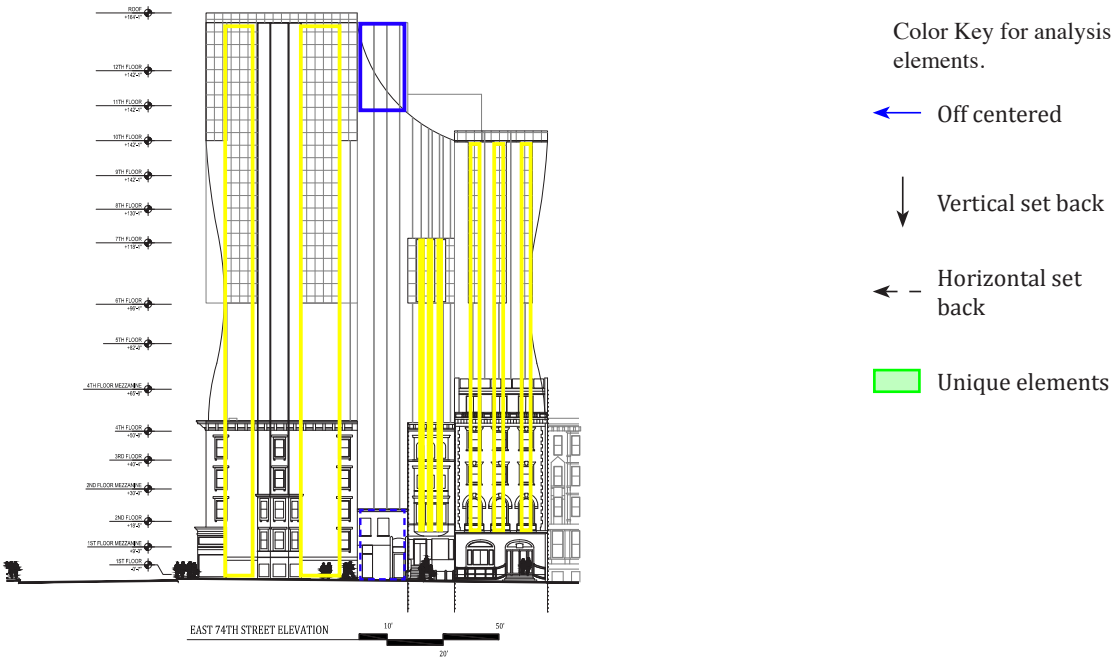


Figure: 282. Repetitive to Unique diagram for the proposed expansion of the Whitney, East 74th Street. The repetitive nature of the Brownstones has been translated into a complimentary pattern developed in the rooftop addition. By literally extruding the fenestrations of the Brownstones and varying its relationships between the windows of the addition and copper cladding, a new and distinct language has been introduced.

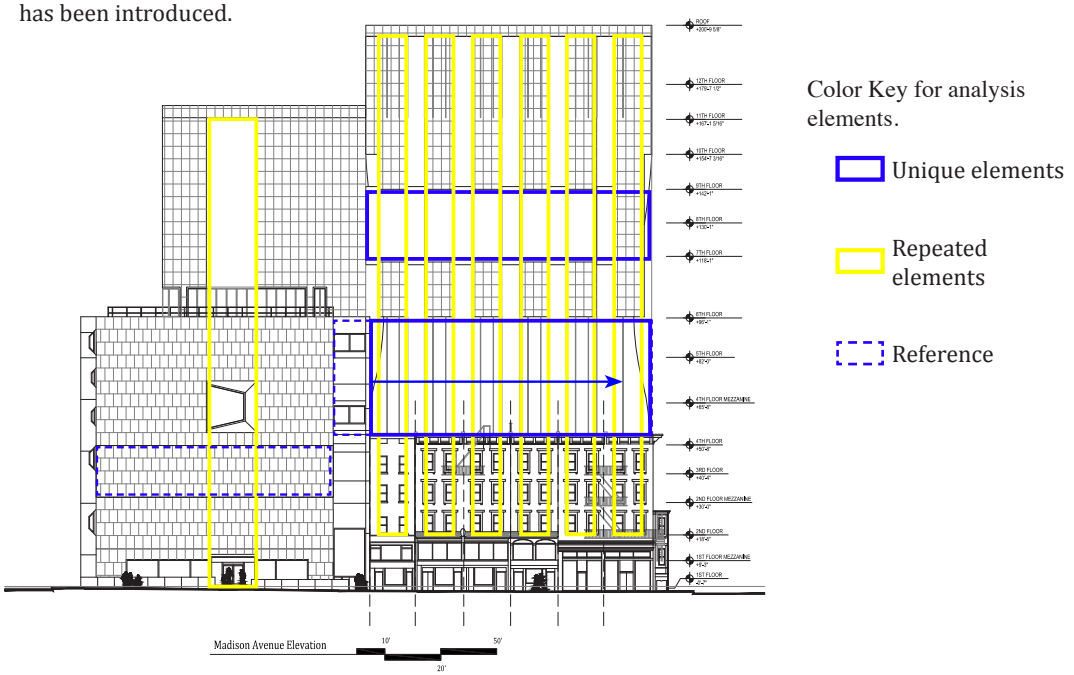


Figure: 283. Repetitive to Unique diagram for the proposed expansion of the Whitney, Madison Avenue. Continuing with the repetitive reference of the Brownstone the unique elements of the Whitney were highlighted on Madison Avenue, and carried over to East 74th Street. Such an example would be the relationship between the large Whitney window and the bridge, by extruding their relationship into the rooftop addition. The existing relationship between the Whitney and the Brownstones has been integrated with the uniqueness of the curved glass portion.

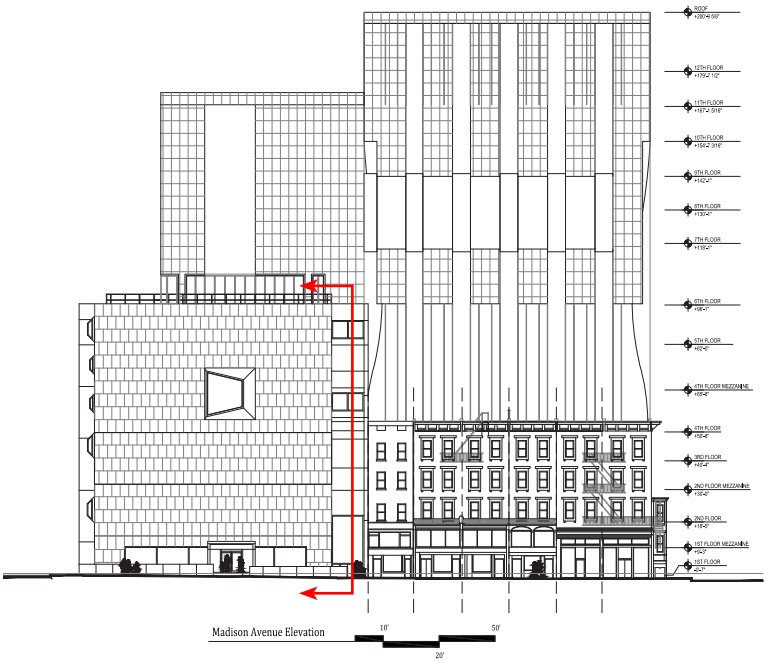


Figure: 285. Madison Avenue Elevation identifying where the section of the recessed wall of the Whitney is located.

Color Key for analysis elements.

Highlighting the area influenced

Carried over reference points

Reference from existing

Figure: 284. The red line identifies the unique recessed portion of the Whitney that has developed a relationship with the Madison Avenues Brownstones' height and cornices. The relationship is highlighted by three blue reference arrows, that identify the points of reference in the section of the Whitney and how it relates to the Brownstones and the rooftop addition.

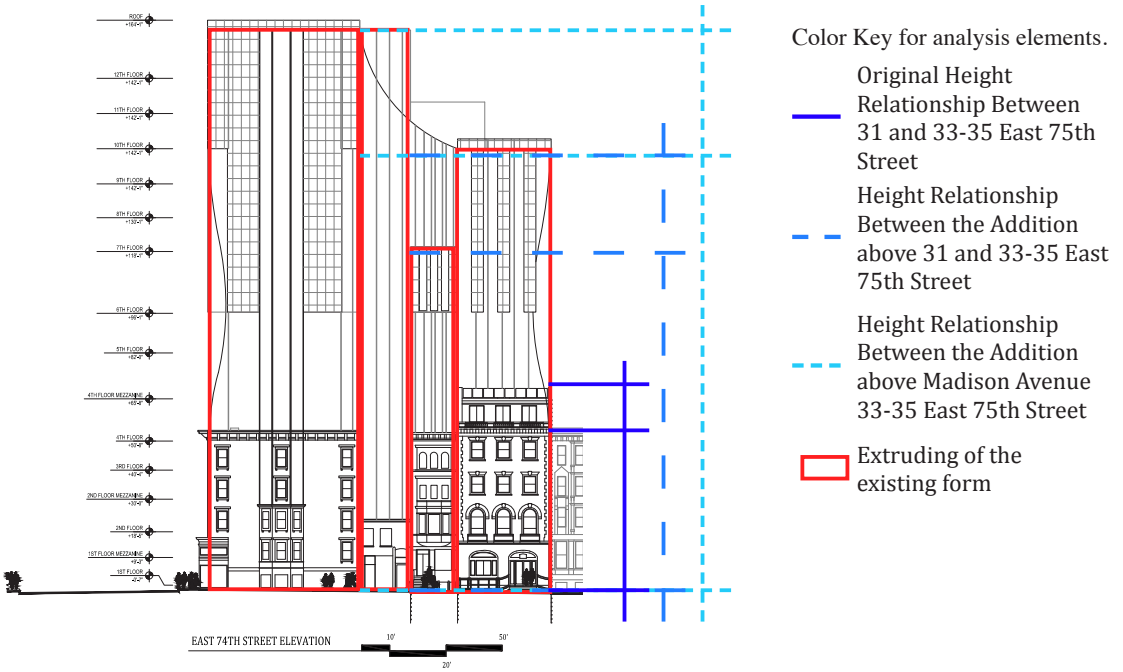


Figure: 286. Unit to the Whole diagram for the proposed expansion of the Whitney, East 74th Street. The form of each of the Brownstone were extruded into the rooftop addition. While the height over the Madison Avenue Brownstones is dominantly influenced by the Whitney, the relationship in the varying heights in the addition was developed using the height difference between 33-35 East 74th Street and the other Brownstones. This proportional relationship was proportionally extruded to get the heights of 31 and 33-35 East 75th Street.

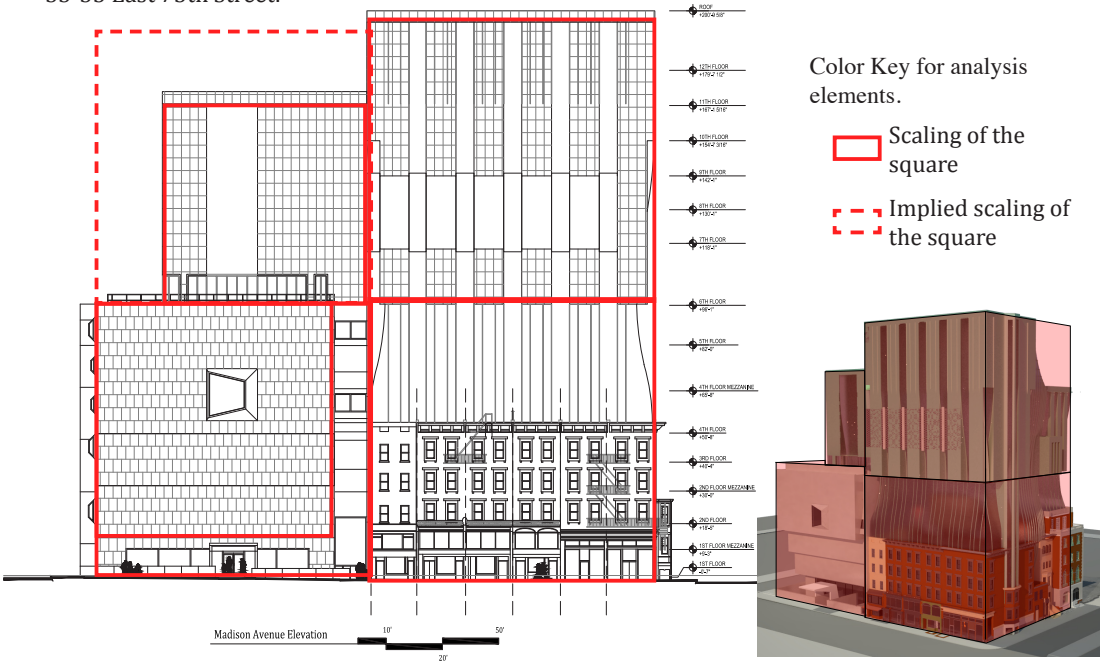
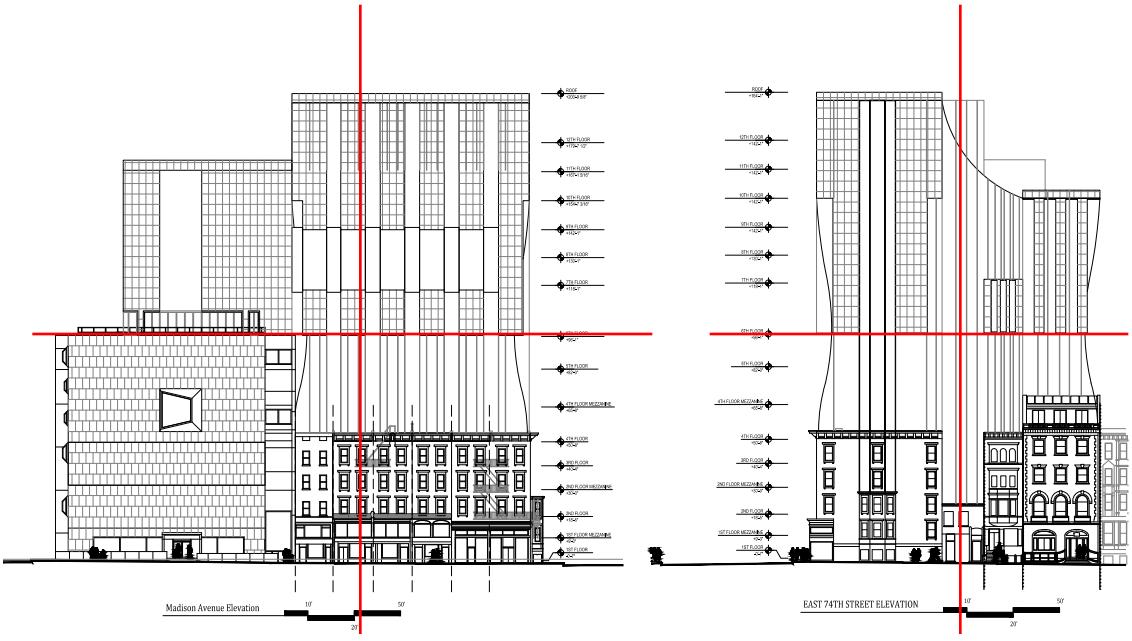


Figure: 287. Unit to the Whole diagram for the proposed expansion of the Whitney, Madison Avenue. The dominating shape of the square found in the Whitney was used to develop the height of the rooftop addition and to unite the desperate parts of the development. The rending illustrates how the cube was carried through the overall design of the museum.

Color Key for analysis elements. Symmetry Lines

Figure: 288. Symmetry diagram for the proposed expansion of the Whitney. This diagram illustrates the symmetry of the units.



Color Key for analysis elements. Symmetry Lines

Figure: 289. Symmetry diagram for the proposed expansion of the Whitney. This diagram illustrates the overall symmetry of the development of the elevation on Madison Avenue and East 74th Street.

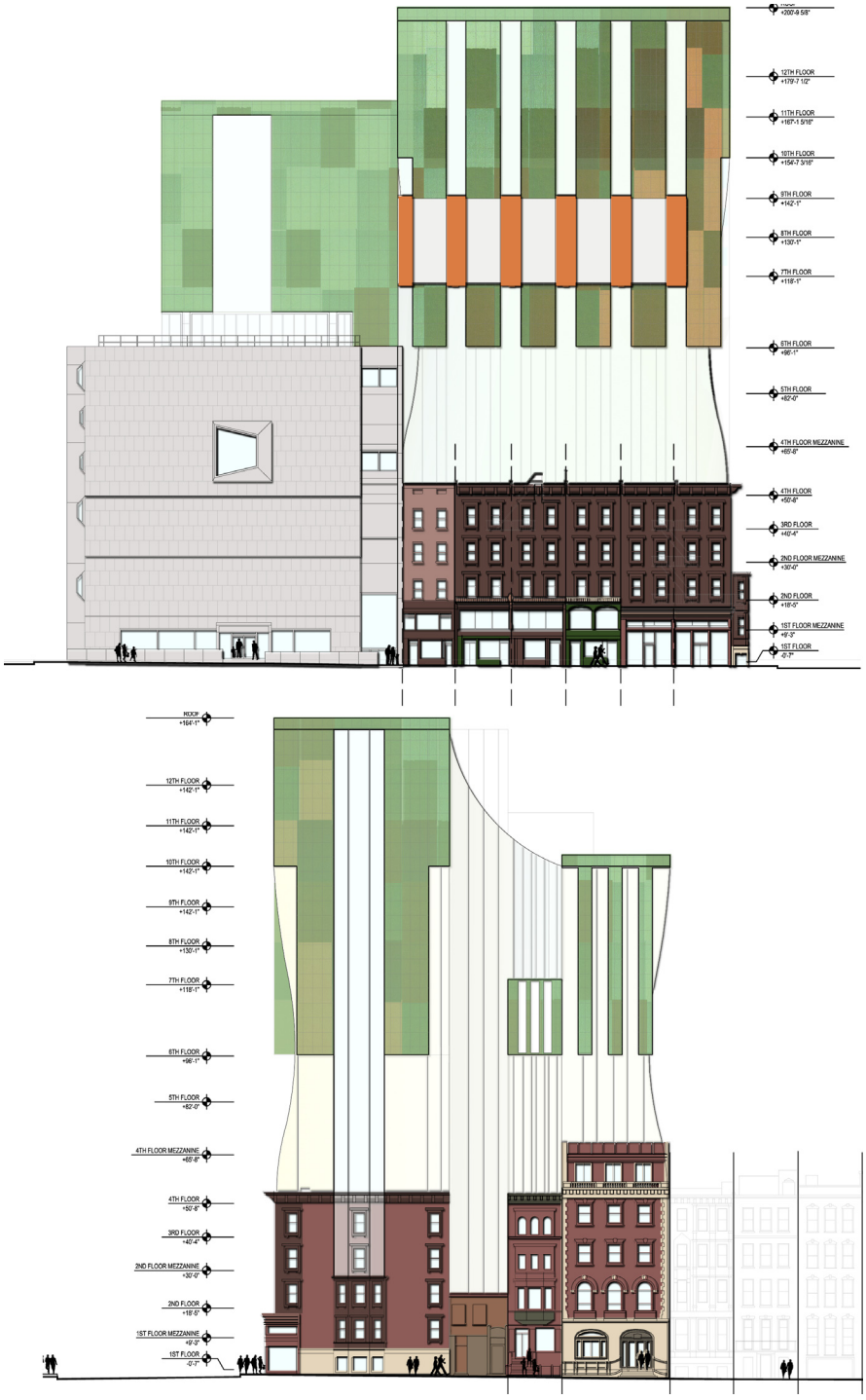


Figure: 290. Madison Avenue Proposed Elevation.
Figure: 291. East 74th Street Proposed Elevation.

The new addition will be 202' in height; the substantial scale of the addition on top of the Brownstones has been taken into account. The mass of the addition is necessary to ensure that the needs of the museum are met, while maintaining as many interior spatial conditions as possible. Additionally, the larger mass will prevent overcrowding of the program within the heritage buildings. The bottom part of the addition is an intermediate space composed of semi-opaque glass that softens the mass of the overall addition above the Brownstones.

The approach taken to integrating the Brownstones is to employ the psychology of taking away just enough information, so that users can fill in the blanks, as when half a word is covered, yet the word can still be read. The process is like a transference of the energy of the original building to the accomplishment of the expansion.

Some of the elements of the existing building will be removed, but their outlines will remain imprinted on the floor. Other elements will remain, in essence, but will be moved to accommodate growth (to be discussed in the circulation section). The voids in between the Whitney and the Brownstones that line Madison Avenue and the two major Brownstones on 74th Street, as identified as the "forgotten space," will play a critical role in the development of the expansion of the Whitney Museum. These forgotten spaces will not be infilled with new programs; rather, much of this space will serve as circulation spaces and contemplative voids where the museum's visitors will be able to discern the exterior walls of the Brownstones and discover the spaces behind the Brownstones that are normally not experienced. When inside this new extension to the Whitney, the forgotten space will be made accessible and visible from different vantage points by catwalks and a staircase. The rooftops of the Mezzanine and Second level will become additional lobby space and sculpture courts where visitors would be able to look out the windows and peer below to capture a glimpse of the once-forgotten space between the Brownstones.

Creating easily navigated and functional circulation throughout the museum integrated between several buildings becomes complicated. Since the spatial requirements of introducing a new circulation system will incur the most historical loss of all interventions to the Whitney and the Brownstones, it is important to refer back to the value system. As mentioned in the development of the value system, it is always desirable to identify existing openings that can accommodate circulation between the old and the new. Unlike some of the other case studies, the Whitney Museum has few perforations on its exterior. With the exception of the overall form of the building, windows provide

the majority of the distinguishing features that define the Whitney Museum. Utilizing the exterior windows as a means to connect the existing building and the addition is not an option because of the significance of the windows and because the Whitney has been developed to the property line.

Fortunately, the expansion made in the 1990s connecting the Whitney to 943 Madison Avenue has created a perfect opportunity to utilize existing openings in the firewall between the Whitney and the Brownstones to provide a connection from the old to the new minimizing impact on the Whitney Museum. The opening linking the second floor of the Whitney to the second floor of 943 Madison Avenue will be used as the primary point of

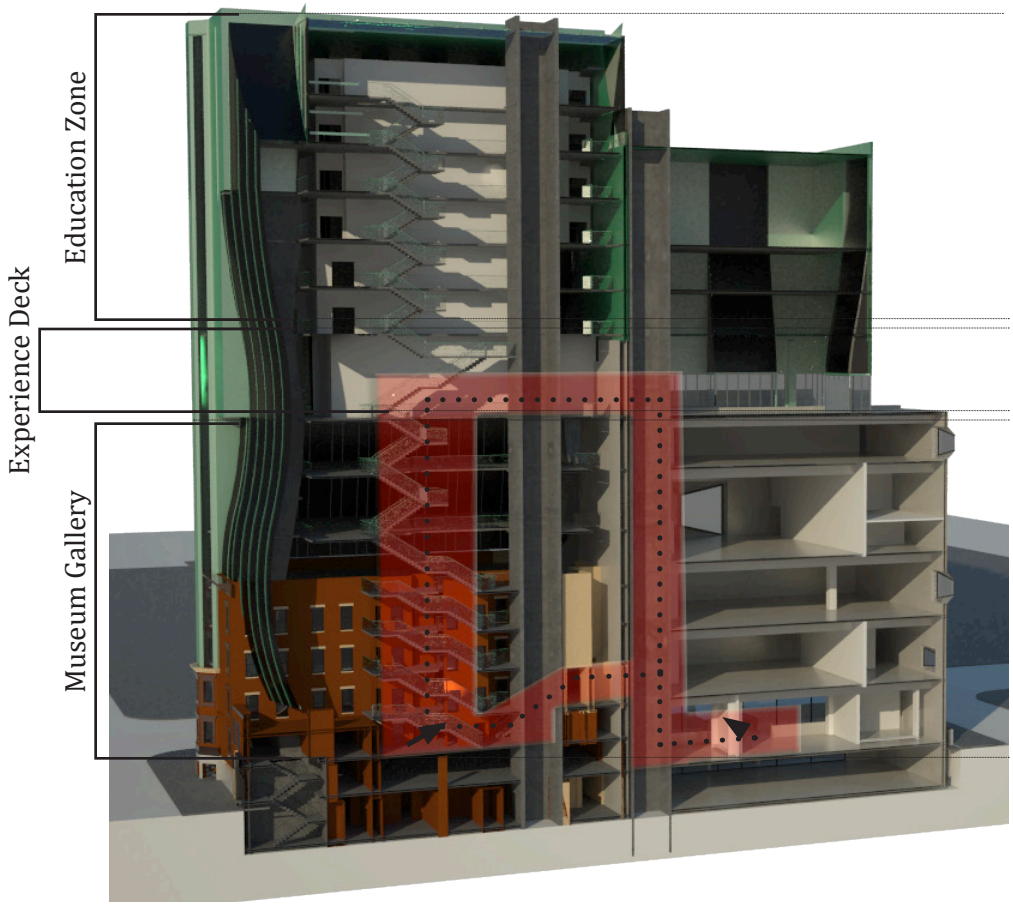


Figure: 292. Experience Loop Diagram: outlined in red is the flow of circulation that will be experienced throughout the gallery. Vertically the museum is separated into three basic zones the Museum Gallery Zone, the Experience Deck, and the Education Zone. The Experience Deck is where a pause in the movement through the museum will occur, providing the patrons of the museum to take a break and grab a bite to eat.

connection between the Brownstones and the Whitney; however, it will need to be widened. The solid nature of the dividing firewall between the Whitney and the Brownstones has developed into a defining feature, which has been valued as being significant and worth saving. The value of the firewall led to the decision to develop a circular pattern where the primary connection points between the old and new would converge only on the second floor and on the sixth floor and above. This decision to create a circular pattern also addressed concerns about confusion that often occurs in circulation when an addition is introduced to an existing building, as was the issue with both the Louvre and the Metropolitan Museum. Restricting the circulation to a loop, allows visitors a pleasant ameliorated experience navigating a continuous flow of galleries from start to finish.

Identifying how the existing Whitney Museum could connect with the Brownstones was only part of the circulation issue; there is a need for all five Brownstones to operate as one. Unfortunately, among the Brownstones, there are few existing openings that could handle the circulation of the museum; these openings would have to be enlarged if used. All of the windows are too small to permit the proper flow of circulation, and the interior of the Brownstones cannot accommodate circulation either, at least not without completely removing all existing spatial relationships. Removing all existing spatial relationships is not desirable because it is important for visitors to appreciate that the Brownstones on Madison Avenue were originally composed of six buildings. As indicated by the value system, the interior of the Brownstones can be significantly altered, but it is preferable to maintain some interior spatial relationships to indicate how the Brownstones were divided.

According to the value system, the back exterior walls are less significant than the front facade due to minimal visibility of the back from the street. The back walls will be changed just enough for visitors to be able to fill in missing information, such as the repetition of the back windows. The chosen solution is to cut out the entire back wall of 939 Madison Avenue and reconstruct it 10’ away from its current location; salvaging as many of the original windows and bracket cornices as possible. While that portion of the cutout wall will be reconstructed, this solution does minimize potential historical loss that would have occurred if a window were simply removed on every floor to make room for an opening.

To further develop the concept of transference of energy, the wall will be reconstructed backwards, which gives the visitor the opportunity to experience the exterior and the interior at the same time. To maximize the effect of this change, the main form of vertical circulation will wrap around the wall, allowing the visitors to see the thickness of the wall and other features that cannot normally be seen.

While the redundancy and repetition of the Brownstones is a defining characteristic, the argument has been made that the public has deemed the repetition of the facades as more critical than the interior walls, with the exception of the partiwalls. The partiwalls were maintained to inform the user of how the Brownstones were separated. There is no attempt to retain interior spatial relationships of the Brownstones deemed non-significant by the value system. Maintaining cramped spaces as nostalgic mementos is not conducive to the needs of the Whitney, which unlike the Tenement Museum, is not a house museum.

In addition to implying the outline of the interior walls that have been removed the first 6" of the old wall will be retained to develop a visual reminder of what was once there. These nubs of the wall will create divisions of the interior for exhibit designers.

Another circulation issue was how to connect each of the Brownstones in a logical manner that still enables the proportioning of the Brownstones to be experienced. The Brownstones currently connect 935 and 933 Madison Avenue on the 2nd, 3rd, and 4th floors. The second floor has one 3' opening, the third floor and fourth have three doors each. To minimize a change, in some places the circulation will be linked through existing closets.

Program

The programmatic parameters for this design project will be based on information gathered from various resources. The future addition will be 134,000 square feet. The program will require 30,000 square feet of gallery space minimum to be added to the 32,000 square feet of gallery space that already exists. New gallery space and new collection areas for storage will need to accommodate 13,000 pieces in the permanent collection. Spaces also need to accommodate traveling exhibits. In addition, there is a need for public areas where different programs can be held, such as an auditorium, Education Zone, restaurants, and event halls.[220]

220 Nicolai Ouroussoff, The Whitney Museum's Identity Crisis.

Other spaces will be determined based on Gail Dexter Lord's and Barry Lord's book The Manual of Museum Planning. Areas within the museum will be broken down into four zones: Public collection area, Non- public collection area, Public non-collection area, and Non- public non-collection area. These defined areas will create an efficient layout. These spaces, based on a typical ratio of 40 percent for the public collection zone, and about 20 percent for each of the other three zones are defined as:

"Public collection area: zone with environmental controls and security designed for the preservation of the collection, and with a level of finish and durability appropriate.

Non- public collection area: zone in which environmental controls and security are provided for the preservation of the collection, but with a level of finish adequate for staff use only.

Public non-collection area: zone in which environmental controls need achieve human comfort levels only, but in which levels of finish and durability must be appropriate for public use.

Non- public non-collection area: zone requiring environmental controls adequate for staff comfort only, and levels of finish appropriate to staff use only."[221]

Organization of the placement of galleries will be according to the periods in which the art was completed. For instance, the art of the pre-20th century will be displayed in the Brownstones. Art enthusiasts will be able to appreciate the art in spaces of a scale corresponds with the space the art was designed for.

While both the Renzo Piano and Rem Koolhaas proposals located the auditorium in the basement, this proposal would locate the auditorium in the social zone on the top floors so that the majority of the basement could be retained. Additionally, locating the auditorium with other public- non collection areas aids in introducing a refreshing pause into the experience of the museum. This area of pause with all of its components will be called the social zone, located above the existing Whitney and the Brownstones on the top three floors. The social zone will be a place where visitors will be able to take a break and digest their experience while grabbing a bite to eat, stepping outside into the sculpture garden to get some fresh air, or go to the auditorium for a lecture or event. This social zone will include a

221 Gail Dexter Lord and Barry Lord, The Manual of Museum Planning (Lanham: AltaMira Press, 2001). 283-88

fine dining restaurant, bar, coffee shop, event hall, rooftop sculpture garden, and education zone in addition to the auditorium creating a full experience for visitors to enjoy before continuing on their journey through the rest of the unexplored gallery spaces. Once back on the ground floor, before grabbing their coats, the visitors can stop at the Museum Shop.

Unlike the proposals by Rem Koolhaas and Renzo Piano, there will not be a relocation of the main entrance. This proposed addition will keep the original iconic entrance. A problem encountered when incorporating the Brownstones is the multiple entrances that no-longer serve a purpose. This issue was resolved in Renzo Piano's design by retaining retail shop portions of the front parts of the Brownstones for lease. Citing the fact that the Whitney is a non-profit organization; however, the community disagreed with the Whitney earning revenue by leasing the spaces.

To prevent the block from becoming strictly an institutional block, and to maintain the street activities in front of the Brownstones, the first floor and the mezzanine level of the Brownstones will house the Biennial Shop, Museum Shop, Friends Lounge, the Whitney Salon, and the Whitney Speakeasy in the cellar below the Whitney Salon. These last three social programs have been selected because currently in New York City museums are becoming more social and periodically museums will host a social night open to the public. Even the Metropolitan Museum has a Rooftop Martini Bar.

The Museum Shop, Friends Lounge, and Whitney Salon will utilize the first two floors of the Brownstones. On the Mezzanine level, all of these programs will converge onto the lobby of the extension.

This proposed design addresses many of the concerns brought up by the opponents of past proposals for the expansion of the Whitney. For instance, it addresses the seven variances that were needed to get Renzo Piano's design approved. One of the variances needed to allow for the new entrance which removed 943 Madison Avenue and the back of 933 Madison Avenue because by removing these two buildings and not replacing them with a new building broke up the continuous street face required on Madison Avenue. So in this proposed intervention both 933 and 943 Madison Avenue will be retained maintaining the continuity of a continuous row of buildings on Madison Ave. A couple of the variances will still have to be accommodated because the Whitney's program could not fit into the area

that was allowed according to setbacks and height restrictions. Arguably, there will still be a need for setback and height variances because museums have different spatial requirements from residential buildings and commercial buildings.

Past attempts to integrate the Brownstones into the expansion of the Whitney called for demolition of 943 Madison Avenue, 941 Madison Avenue, and the portion of 935 Madison Avenue on East 74th Street. The demolition of these buildings was not well received by the community. Unlike past proposals, this intervention retains the entire outer walls and some of the interior spatial relationships. Keeping all of the exterior walls of the Brownstones and maintaining the existing spaces in-between the Brownstones has resulted in a larger mass above the Brownstones.

The value system developed for the Whitney Museum is only for this project. This process is not saying what should be done, rather how the design process should be approached. The desired result of this process would be the realization that additions should be as celebrated as existing buildings.

The objective of this proposal is not to satisfy the desires of every preservation critic who objected to previous proposals, but rather to make the case for why an addition is appropriate and should be built.

	Area	Use	Sq. ft.
Sub-Cellur			3,903 sq. ft.
Existing Whitney Sub-Cellur	Non-Public Non Collection Area	Mechanical	-- sq. ft.
Existing Brownstones 33-35 E 74th Street			
New Proposed Intervention			
Basement			20,015 sq. ft.
Existing Whitney	Public Non Collection Area	Existing Sculpture Court	2,331 sq. ft.
		Existing Cafeteria	714 sq. ft.
	Non-Public Non Collection Area	Existing Kitchen	415 sq. ft.
		Extended Kitchen	377 sq. ft.
	Non-Public Collection Area	Sculpture Storage	846 sq. ft.
Existing Brownstones	Public Non Collection Area	Whitney Speakease	995 sq. ft.
	Non-Public Collection Area	Existing Library	2,953 sq. ft.
	Non-Public Non Collection Area	Museum Shop/storage	850 sq. ft.
		Whitney Speakease/ kitchen	692 sq. ft.
1st Floor			20,015 sq. ft.
Existing Whitney	Public Non Collection Area	Existing Lobby	2,575 sq. ft.
		Existing Coat Room	363 sq. ft.
	Non-Public Collection Area	Storage	869 sq. ft.
	Non-Public Non Collection Area	Existing Loading dock	953 sq. ft.
Existing Brownstones	Public Non Collection Area	Biennial Shop	714 sq. ft.
		Museum Shop	2,076 sq. ft.
		Friends Lounge	787 sq. ft.
		Whitney Salon	1,360 sq. ft.
	Non-Public Non Collection Area	Existing Office	2,302 sq. ft.
		Whitney Salon Kitchen	548 sq. ft.
1st Floor Mezzanine			7,679 sq. ft.
Existing Brownstones	Public Non Collection Area	Biennial Shop	714 sq. ft.
		Museum Shop	1,315 sq. ft.
		Friends Lounge	787 sq. ft.
		Whitney Salon	886 sq. ft.
New Proposed Addition	Public Non Collection Area	New Lobby	-- sq. ft.
2nd Floor			20,015 sq. ft.
Existing Whitney	Public Collection Area	Existing Gallery	5,741 sq. ft.
	Non-Public Non Collection Area	Expanded Office	1,774 sq. ft.
Existing Brownstones	Public Collection Area	Expanded Gallery	4,148 sq. ft.
	Non-Public Non Collection Area	Existing Office	3,609 sq. ft.
		Expanded Office	190 sq. ft.
2nd Floor Mezzanine			10,087 sq. ft.
Existing Brownstones	Public Collection Area	Gallery	4,618 sq. ft.
	Non-Public Non Collection Area	Existing Office	2,901 sq. ft.

	Area	Use	Sq. ft.
3rd Floor			20,015 sq. ft.
Existing Whitney	Public Collection Area	Gallery	7,868 sq. ft.
Existing Brownstones	Public Collection Area	New Gallery Pre-War	4,618 sq. ft.
	Non-Public Non Collection Area	Existing Office	2,901 sq. ft.
4th Floor			20,015 sq. ft.
Existing Whitney	Public Collection Area	Gallery	7,868 sq. ft.
	Non-Public Non Collection Area	New Office	236 sq. ft.
Existing Brownstones 31 and 33-35 E 74th Street	Public Collection Area	New Gallery	4,656 sq. ft.
	Non-Public Non Collection Area	Existing Office	1,758 sq. ft.
		New Office	525 sq. ft.
4th Floor Mezzanine			12,179 sq. ft.
Existing Whitney	Public Collection Area	Gallery	2,366 sq. ft.
New Proposed Addition	Public Collection Area	New Gallery	7,078 sq. ft.
5th Floor			19,633 sq. ft.
Existing Whitney	Public Collection Area	Gallery	7,968 sq. ft.
	Non-Public Non Collection Area	New Office	236 sq. ft.
New Proposed Addition	Public Collection Area	New Gallery	4,025 sq. ft.
	Public Non Collection Area	Outdoor Space	1,022 sq. ft.
	Non-Public Non Collection Area	New Office	1,880 sq. ft.
6th Floor			13,258 sq. ft.
New Proposed Addition	Public Collection Area	Sculpture Garden	4,102 sq. ft.
		Exhibit Space/ Event Hall	3,991 sq. ft.
	Public Non Collection Area	Restaurant	2,126 sq. ft.
		Cafe	1,293 sq. ft.
	Non-Public Non Collection Area	Kitchen	1,075 sq. ft.
7th Floor			14,146 sq. ft.
New Proposed Addition	Public Non Collection Area	Educations Center	1,598 sq. ft.
		Auditorium	3,465 sq. ft.
	Non-Public Collection Area	New Office	4,069 sq. ft.
		Storage	1,796 sq. ft.
	Non-Public Non Collection Area	Back of House	341 sq. ft.
8th Floor			14,603 sq. ft.
New Proposed Addition	Public Non Collection Area	Auditorium	" "
		Education Center	1,815 sq. ft.
	Non-Public Non Collection Area	New Office	4,618 sq. ft.
9th Floor			14,934 sq. ft.
New Proposed Addition	Non-Public Non Collection Area	New Office	2,387 sq. ft.
		Conservation	8,108 sq. ft.

	Area	Use	Sq. ft.
10th Floor			7,968 sq. ft.
New Proposed Addition	Public Collection Area	Library	3,903 sq. ft.
11th Floor			7,559 sq. ft.
New Proposed Addition	Non-Public Non Collection Area	New Office	3,903 sq. ft.
12th Floor			7,559 sq. ft.
New Proposed Addition	Non-Public Non Collection Area	New Office	3,903 sq. ft.
		Total Gross Sq. ft.	233,583 sq. ft.
		Total Added Gross Sq. ft.	177,458sq. ft.
	Existing	New	Total
Gallery	34,142 sq. ft.	38,258 sq. ft.	72,400 sq. ft.
Office	13,471 sq. ft.	31,033 sq. ft.	44,504 sq. ft.
Auditorium	-- sq. ft.	3,465 sq. ft.	3,465 sq. ft.
Library	2,953 sq. ft.	3,903 sq. ft.	6,856 sq. ft.
Conservation	-- sq. ft.	8,108 sq. ft.	8,108 sq. ft.
Education Center	-- sq. ft.	3,413 sq. ft.	3,413 sq. ft.
Miscellaneous	233,583 sq. ft.	233,583 sq. ft.	94,837 sq. ft.

Figure: 293. Past proposed and current designs to the Whitney have been used to determine the program requirements for this proposed intervention.

Figure: 294. Existing Basement Floor Plans of the Whitney Museum and the neighboring Brownstones. (Image Source: The Whitney Museum of American Art: The Building Blocks Series and Beyer Blinder Belle)
Figure: 295. Basement Floor Plan Proposed extension to the Whitney Museum.

Figure: 296. Existing Basement Floor Plans of the Whitney Museum and the neighboring Brownstones. (Image Source: The Whitney Museum of American Art: The Building Blocks Series and Beyer Blinder Belle)

Figure: 297. Basement Floor Plan Proposed extension to the Whitney Museum.

Figure: 298. Existing Ground Floor Plans of the Whitney Museum and the neighboring Brownstones. (Image Source: The Whitney Museum of American Art: The Building Blocks Series and Beyer Blinder Belle)
Figure: 299. Ground Floor Plan Proposed extension to the Whitney Museum.

Figure: 300. Existing Mezzanine Floor Plans of the Whitney Museum and the neighboring Brownstones. (Image Source: The Whitney Museum of American Art: The Building Blocks Series and Beyer Blinder Belle)
Figure: 301. Mezzanine Floor Plan Proposed extension to the Whitney Museum.

Figure: 302. Existing Second Floor Plans of the Whitney Museum and the neighboring Brownstones. (Image Source: The Whitney Museum of American Art: The Building Blocks Series and Beyer Blinder Belle)
Figure: 303. Second Floor Plan Proposed extension to the Whitney Museum.

Figure: 304. Existing Third Floor Plans of the Whitney Museum and the neighboring Brownstones. (Image Source: The Whitney Museum of American Art: The Building Blocks Series and Beyer Blinder Belle)
Figure: 305. Third Floor Plan Proposed extension to the Whitney Museum.

Figure: 306. Existing Forth Floor Plans of the Whitney Museum and the neighboring Brownstones. (Image Source: The Whitney Museum of American Art: The Building Blocks Series and Beyer Blinder Belle)
Figure: 307. Forth Floor Plan Proposed extension to the Whitney Museum.

Figure: 308. Existing Fifth Floor Plans of the Whitney Museum and the neighboring Brownstones. (Image Source: The Whitney Museum of American Art: The Building Blocks Series and Beyer Blinder Belle)
Figure: 309. Fifth Floor Plan Proposed extension to the Whitney Museum.

Figure: 310. Existing Fifth Floor Plans of the Whitney Museum and the neighboring Brownstones. (Image Source: The Whitney Museum of American Art: The Building Blocks Series and Beyer Blinder Belle)
Figure: 311. Fifth Floor Plan Proposed extension to the Whitney Museum.

Figure: 312. Existing Fifth Floor Plans of the Whitney Museum and the neighboring Brownstones. (Image Source: The Whitney Museum of American Art: The Building Blocks Series and Beyer Blinder Belle)
Figure: 313. Fifth Floor Plan Proposed extension to the Whitney Museum.

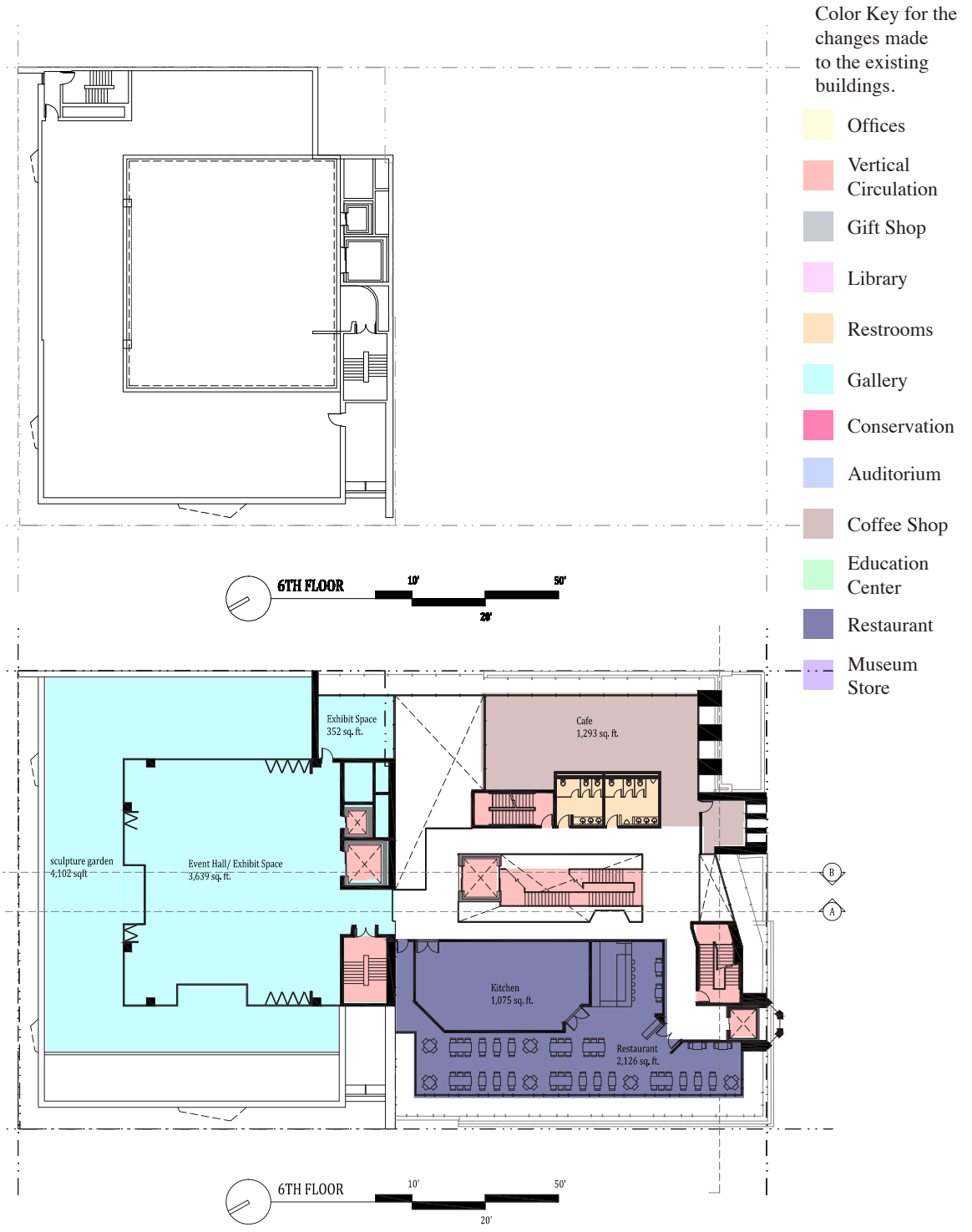


Figure: 314. Existing Fifth Floor Plans of the Whitney Museum and the neighboring Brownstones. (Image Source: The Whitney Museum of American Art: The Building Blocks Series and Beyer Blinder Belle)
Figure: 315. Fifth Floor Plan Proposed extension to the Whitney Museum.

Figure: 316. The proposed new 7th floor.
Figure: 317. The proposed new 8th floor.

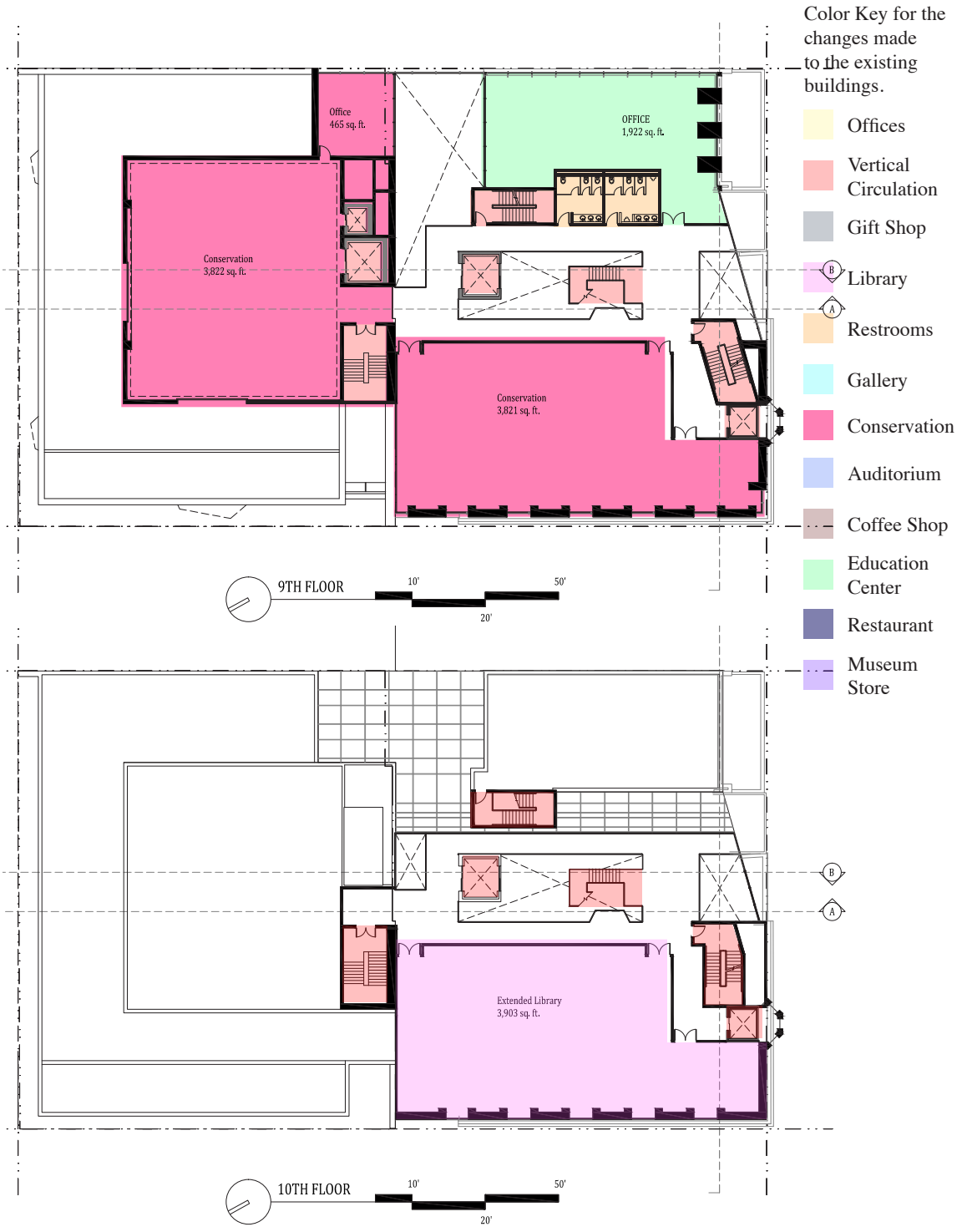
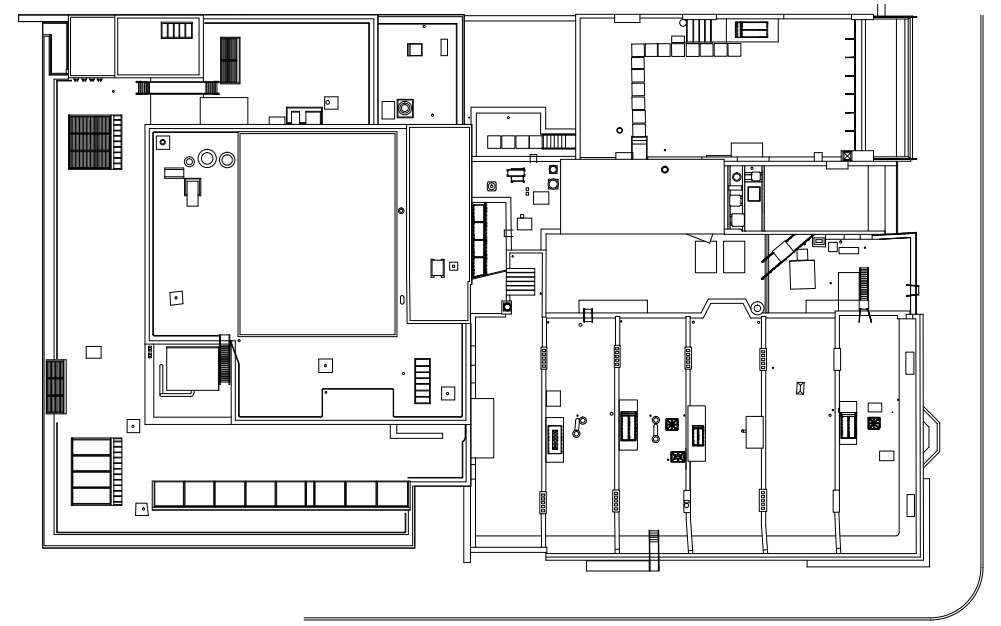


Figure: 318. The proposed new 9th floor.
Figure: 319. The proposed new 10th floor.

Figure: 320. The proposed new 11th floor.
Figure: 321. The proposed new 12th floor.



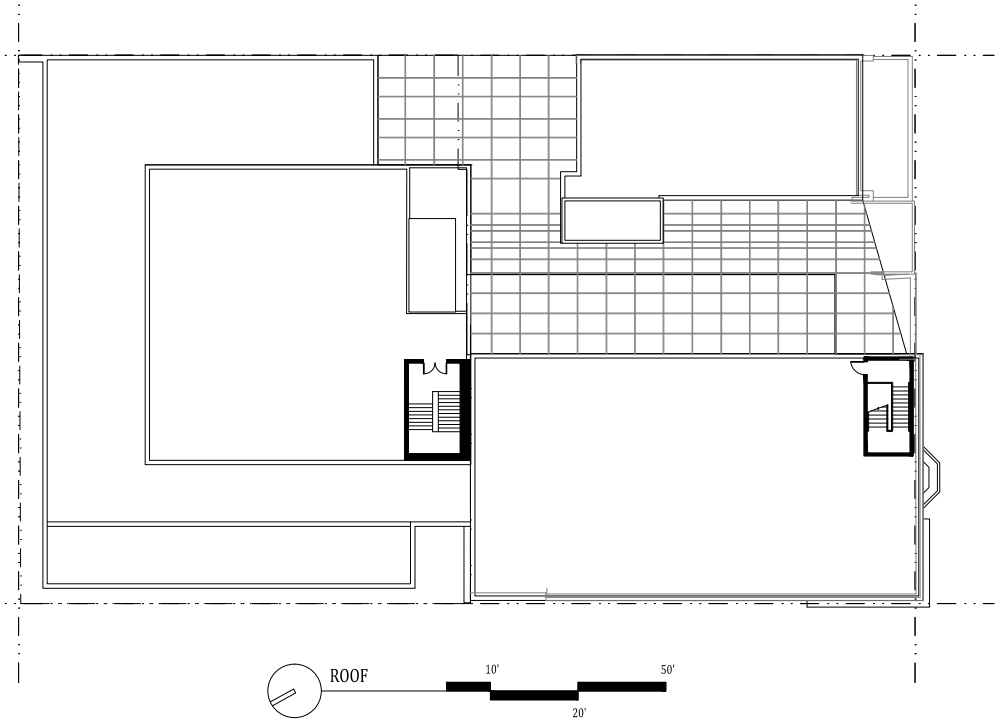


Figure: 322. Original roof plan.
Figure: 323. The proposed new roof plan.

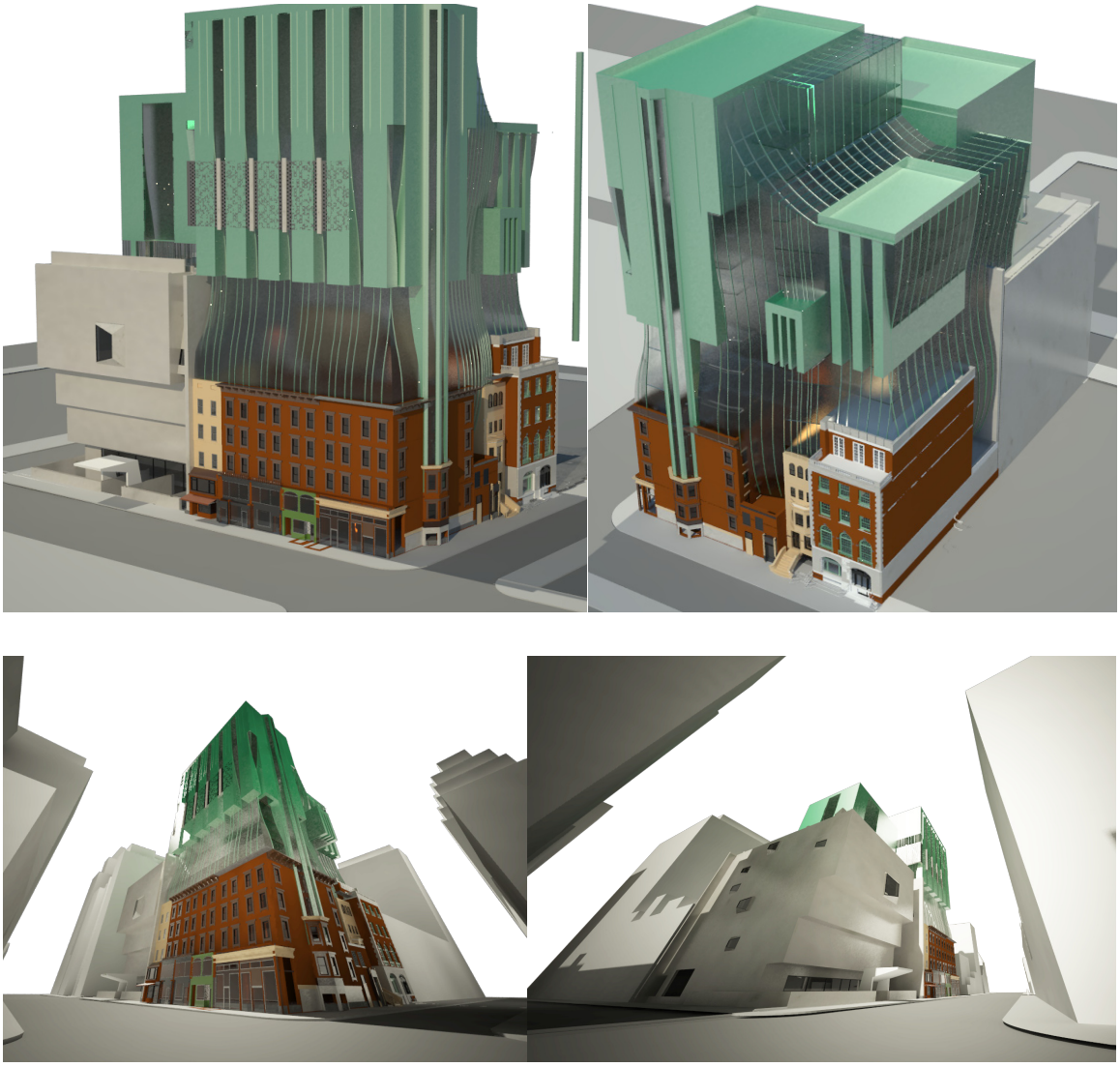


Figure: 324. Rendering of the proposed addition looking from the corner of East 74th Street and Madison Avenue.
Figure: 325. Rendering of the proposed addition looking from East 74th Street towards Madison Avenue.
Figure: 326. Rendering of the proposed addition from a pedestrians perspective, on the cover of East 74th Street and Madison Avenue.
Figure: 327. Rendering of the proposed addition from a pedestrians perspective, on the cover of East 75th Street and Madison Avenue.

Conclusion

This dissertation has demonstrated how heritage structures can be retained in the process of developing/renovating contemporary buildings. This section will reiterate some key points that were covered in every chapter.

"Preservation Issues" examined how current preservation practices came to be, and the impact of *Penn Station vs. New York,* a Supreme Court verdict that illustrated the rights of the public to determine the future of their environment. The overall point made was that the stigma associated with change is due to fear of speedy progress, which results in the overwhelming loss of heritage buildings. The question of how additions should be integrated into heritage buildings has been a contentious topic ever since. Fundamentally, because once a change is made, it is never easily or cheaply undone. While these issues have developed a rift between the conventional and future practices of preservation, it is irrefutable that in recent years, the conversation on how historical buildings should evolve has met new popularity and acceptance. This is due to the current condition of preservation where the buildings of the modern movement are now becoming eligible to be on the national register of historic places, but are threatened because they have not yet reached that venerated state. Thus, defining a broader understanding on what is an acceptable form of additive architecture is necessary.

In "Annexation: A Historical Evolution in Museums" it was illustrated that the built environment is slowly reverting back to a more traditional form of growth, where buildings change to meet the growing needs of an evolving user. A gradual transition from "low-road" through "high-road" to "hybrid architecture" was also demonstrated. Today, hybrid architecture has gained global appeal for the integration of contemporary additions to heritage buildings reflecting the trajectory of the project's history. At the same time, the growing trend of hybrid architecture has generated conflicted discourses on how contemporary additions should be integrated to heritage buildings.

Outlined in "Cultural Urbanism" were some of the prevailing views that have guided urban rejuvenation movements involving cultural tourism. It became evident while conducting this research that governments, urban planners, and architects have all realized the benefits of modernization of the historical, urban fabric. Now, due to increased awareness and technical maturity, extensions are being incorporated in a manner that enables successful preservation practices and architectural innovations to coexist in an

unprecedented way in cultural epicenters around the world. These designs often provide a catalyst for the development of a city as they alter/renew the urban fabric. However, questions remain if the benefits outweigh the potential loss.

The "Case Studies" illustrated the need for thoughtful additions to heritage buildings. It also underscored the importance of selecting the finest designs from competitions and community insights. Additionally, the buildings surveyed in the case studies highlighted the possibility of exploring innovative architectural forms without compromising on historical integrity. Moreover, the case studies demonstrated how Herzog and de Meuron, Daniel Libeskind, Norman Foster, and others have proven that additions can be successful without following traditional ideas, and that the success of these buildings is not contingent on the fame of the architect, as was illustrated with examples of architects like Nieto Sobejano Arquitectos. These architects have been able to integrate conventional museum designs with new, unique, and complex spatial layouts, redefining what is expected from museums of the twenty-first century. The case studies also analyzed whether or not the researched buildings would carry an architectural legacy similar to sites such as the Louvre. Although, it was evident that these buildings represented their period and would set precedence for future buildings. Finally, the case studies showed that even successful heritage buildings that carry out additions have encountered resistance and adversity.

The chapter "Proposed but Never Realized" analyzed the buildings that were never completed, or were not met with positive reception upon completion. The focus was particularly on the Whitney and its various approaches to evolve, one of which had the support of the community and was able to receive unanimous approval from different review boards. However, the Whitney was not able to realize its physical growth because of the delays and lawsuits filed by opponents of its development. This chapter also illustrated other examples of unnecessary resistance to additions. Many instances covered here encountered expensive delays that in some cases resulted in stalling the project indefinitely. Additionally, this section stressed the need for a community to coalesce on significant architectural projects. Ultimately, the development of these projects will have to rely on the consensus of the majority. In some cases, despite the majority's approval, addition designs have faltered. This was primarily due to a lack of communication with the local community. However, the reality is that there will be people who will never embrace any addition. Consensus of the majority will always be a challenge. To resolve conflicts sometimes the

government might need to get involved, as was the case with the Louvre, but this approach could also result in community backlash as was seen with the Ara Pacis Museum. However, once completed these building often exceeded expectations.

In "Rethinking Preservation Guidelines" the point was made that with the formulation of new preservation guidelines, the time has come to ease up on regulation and retention of historic buildings to make room for the next generation of architects. This will require constant reforms of preservation practices. Preservation is no longer just about protecting a historical ambience. It is also about expanding the modern identity of the building and making the public identify with that identity. It has been revealed that the historical significance of a building should never be undermined simply for economic and technological advancements; on the same note, heritage buildings cannot be treated as relics in the urban environment.

Noted architectural scholar, Steve W. Semes, has stated that when an architect is designing a building he/she is joining a conversation that they either gracefully enter or rudely do. This dissertation argues that it is not a matter of being rude or respectful, but rather a matter of allowing the conversation to change as conversations do. It is not a question of *should* additions be made, but *how* they should be made. The approach illustrated in "Developing a Process" demonstrates that additions should be integrated keeping in mind the history of the building, the sensitivity of the community, as well as the culture of the region. At the same time, the integration should carry the aesthetics of the building into the future. The procedure created in "Developing a Process" encourages flexibility in the overall approach. This method stresses the importance of allowing additions to draw reference from multiple sources, so as not to undermine the significance of the heritage buildings that are being passionately fought for. The method developed here is contingent on the introduction of a new vocabulary, the retention of as much of the existing building as possible, and the reflection of the community's needs.

The last section of the dissertation was a proposed design for an addition to the Whitney Museum, where the process of adding to a heritage building was applied. While the procedure developed is rudimentary, it is a basic representation of what needs to occur before and during an intervention to a heritage building. Fundamentally, the most important step in this process is for a community to be self-critical and develop a value system. This notion of a value system is personal, timely, and involves many stakeholders. It is also unique to the project, and deserves the investment of time, energy, and money.

The concerned parties need to understand what they are trying to achieve, and why it is needed in the first place. The institution (or building users) that is exploring the expansion of an existing heritage building needs to go through a pre-planning development with the community, which an architect and a preservationist can help mediate. In the end, the addition to a heritage building will be a byproduct of the community and the users, brought to fruition through an architect. Having the involvement of an architect from the start will enable the community to gain a better insight on the existing conditions and will bring attention to the probable loss that may occur when integrating an addition. While the value system developed for the Whitney Museum has been found to be appropriate for this approach, the criteria used to determine what is worth saving will be different for every project, community, and period.

As is generally accepted, the values of communities change, so the assumption that the process should take years longer than a normal development is unfounded. The dialogue with the community should be conducted in a timely manner. There will be instances where the invested parties will resolve not to develop an addition to a heritage building because the majority might feel that the time or place for it is inappropriate. While this conclusion must be respected, it should not be set in stone, for future generations might feel differently.

Consequently, this section illustrated the complex decision-making process involved in the construction of any addition. Interactions and negotiations need to involve all groups with invested interest, including policy-makers, owners, the community, architects, and program users. Additive architecture is a necessity to the healthy growth of the built environment in the midst of today's ecological and economical concerns, and should not be met with resistance. Projects should be approached objectively, and more energy should be spent on ensuring that the augmented properly meets the needs of users and retains the integrity and intrinsic value of the original building. The future of the built environment should not be based on personal desires to keep the building in a given state or restore the building to its former glory. Inversely, the building should not be designed for aesthetic purpose alone.

This project aims to encourage the redevelopment of existing buildings in a holistic manner that would respect the cultural and the aesthetic environment. This is not to imply that additions made to heritage buildings have to be avant-garde, or that buildings should be designed with future additions in mind. Neither is the argument being made that every

building must be added to. Some buildings will inevitably become obsolete. Instead, the crux of this dissertation's thesis is that the built environment is expected to change and that the changes that occur should not be bound by the aesthetic principles of the past. It is a natural reality of the built environment to change and reflect the social and economic climate of its time and place. The striation in the fabric of the built environment can potentially benefit from drastic variation in architectural styles.

It should also be noted that these additions are not reserved for museums alone; museums are setting the precedent for this form of architectural evolution. The ultimate objective of this dissertation is that the example of architectural interventions will be applied to other archetypes, making this form of growth more accessible to the public, not simply the growth of extensions, but rather the growth and acceptance of the innovation and expression that these buildings embody.

The important question that arises is: Where does the research go from here? With the foundation developed in this research, there is still much that needs to be explored in the realm of adding to the existing built environment. In the end, the insight documented in this dissertation is the findings of an aspiring architect. This research is only the beginning of a lifetime pursuit to understanding the dynamics involved in the future physical growths that may or may not occur to heritage buildings.

This question, however, of what should be an acceptable addition to a historical building is a continuing debate. Every generation has a significant story to tell through architecture, and their stories deserve to be told and celebrated. The difficulty encountered with preservation is that as buildings age and technologies and styles evolve, there is not a line that can simply be drawn as to what is worth saving and what is not worth saving. Buildings that were built before the twentieth century are not necessarily more valuable than buildings built fifty years ago.

Reflecting on the Doctorate Project

In reviewing the existing body of knowledge and through personal observation, the topic of integrating additions to heritage buildings is an open-ended and contentious topic that cannot be easily resolved because the impact of an addition is permanent, and diverse viewpoints must be taken into consideration. The subjective nature of this topic means that there cannot be a predefined set of guidelines, nor can the future of an addition rely

solely on the ruling of a committee. While there is still a need for a committee to function as a mediating entity, their views should not be biased. The desire of the majority should be heard and should weigh heavily on the final decision of the future of the proposed addition. The community should have the ability to advocate for the future of their built environment. A proposal to an existing building should not be dismissed strictly because of an aesthetic and a philosophical stance.

With a globalizing world, the development of buildings has become more selective and public. While the views of the immediate community and the users should be considered when determining the future of an addition, a larger audience of stakeholders will also weigh in on any decision. However, this larger community of intellectuals and professionals should do just that: influence the future of the addition, not directly determine its fate. Their influences can be heard through forums and other such mediums of the Internet. In the end public opinion should be welcomed for valuable insights, thereby strengthening the final product of the proposed addition. The rigor of going through the proposed process provides a platform for the justification on the selected approach, which the users and the architects can use to promote the need for this development.

The fact that the future is unknown means that buildings can only really design for the "now." Every addition to a heritage building cannot be timeless. Ironically, the pursuit of timeless architecture can stifle the progression of a building. Buildings should be appreciated for what they represent, not for their timelessness. It is difficult to compare a heritage building that has been critiqued throughout the generation to a new building that has yet to be realized. Was the pyramid added to the Louvre thought to be timeless when it was first built? It has embodied the quality of timeless through the years, but it was not necessarily conceptualized to be that in the beginning. Is the new Islamic wing timeless? Innovations cannot endure until they have been tested by time. Arguably, all innovations can be reserved for new buildings and then later applied to heritage building additions. But then the addition might no longer represent contemporary time and place. This is a conundrum that has long plagued the growth and evolution of a place on a micro and macro scale.

This dissertation has revealed that it is healthier and more successful to create an environment where additions to existing buildings can reflect more than one thought on how the built environment should evolve. While additions will change the perception of a heritage building, this does not mean that the original building will lose its historical

integrity. The benefits of these archetypes far outweigh the shortcomings. Furthermore, this form of architectural integration is not a compromise but is, rather, a viable form of urban growth.

APPENDIX A

The Venice Charter is a basic outline for the international guideline to historic preservation. The International Council on Monuments and Sites (ICOMOS), adopted The Venice Charter "International Congress of Architects and Technicians of Historic Monuments" created the Venice Charter in Venice 1964. For clarification purposes, a majority of The Venice Charter will be included below.

"ARTICLE 1. The concept of an historic monument embraces not only the single architectural work but also the urban or rural setting in which is found the evidence of a particular civilization, a significant development or an historic event. This applies not only to great works of art but also to more modest works of the past which have acquired cultural significance with the passing of time.

Article 2.

The conservation and restoration of monuments must have recourse to all the sciences and techniques which can contribute to the study and safeguarding of the architectural heritage.

ARTICLE 3. The intention in conserving and restoring monuments is to safeguard them no less as works of art than as historical evidence. (Is The Venice Charters aim.)

CONSERVATION

ARTICLE 4. It is essential to the conservation of monuments that they be maintained on a permanent basis.

ARTICLE 5. The conservation of monuments is always facilitated by making use of them for some socially useful purpose. Such use is therefore desirable but it must not change the lay-out or decoration of the building. It is within these limits only that modifications demanded by a change of function should be envisaged and may be permitted.

ARTICLE 6. The conservation of a monument implies preserving a setting which is not out of scale. Wherever the traditional setting exists, it must be kept. No new construction, demolition or modification which would alter the relations of mass and color must be allowed.

ARTICLE 7. A monument is inseparable from the history to which it bears witness and from the setting in which it occurs. The moving of all or part of a monument cannot be allowed except where the safeguarding of that monument demands it or where it is justified by national or international interest of paramount importance.

ARTICLE 8. Items of sculpture, painting or decoration which form an integral part of a monument may only be removed from it if this is the sole means of ensuring their preservation.

RESTORATION

ARTICLE 9. The process of restoration is a highly specialized operation. Its aim is to preserve and reveal the aesthetic and historic value of the monument and is based on respect for original material and authentic documents. It must stop at the point where conjecture begins, and in this case moreover any extra work which is indispensable must be distinct from the architectural composition and must bear a contemporary stamp. The restoration in any case must be preceded and followed by an archaeological and historical study of the monument.

ARTICLE 10. Where traditional techniques prove inadequate, the consolidation of a monument can be achieved by the use of any modem technique for conservation and construction, the efficacy of which has been shown by scientific data and proved by experience.

ARTICLE 11. The valid contributions of all periods to the building of a monument must be respected, since unity of style is not the aim of a restoration. When a building

includes the superimposed work of different periods, the revealing of the underlying state can only be justified in exceptional circumstances and when what is removed is of little interest and the material which is brought to light is of great historical, archaeological or aesthetic value, and its state of preservation good enough to justify the action. Evaluation of the importance of the elements involved and the decision as to what may be destroyed cannot rest solely on the individual in charge of the work.

ARTICLE 12. Replacements of missing parts must integrate harmoniously with the whole, but at the same time must be distinguishable from the original so that restoration does not falsify the artistic or historic evidence.

ARTICLE 13. Additions cannot be allowed except in so far as they do not detract from the interesting parts of the building, its traditional setting, the balance of its composition and its relation with its surroundings.[1]

1 The Venice Charter, International Charter for the Conservation and Restoration of Monuments and Sites, January 12, 1996, http://www.icomos.org/venice_charter.html#restoration (accessed October 4, 2009).

APPENDIX B

Currently the Secretary of Interior Standards defines Rehabilitation made to building in section 36 CFR 67 and 68.3 as:

1. A property will be used as it was historically of be given a new use that requires minimal change to its distinctive materials, features, space and spatial relationships.

2. The historic character of a property will be retained and preserved. The removal of distinctive materials of alteration of features, spaces and spatial relationships that characterize a property will be avoided.

3. Each property will be recognized as a physical record of its time, place and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.

4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.

5. Distinctive materials, features, finishes and construction techniques or examples of craftsmanship that characterize a property will be preserved.

6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.

7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

9. New additions, exterior alterations or related new construction will not destroy historic materials, features and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment will be unimpaired.[1]

1 National Park Service, Part 68: The Secretary of the Interior's Standards for the Treatment of Historic Properties, http://www.kirksvillecity.com/filestorage/74/394/681/CFR_Part_68_Stds.pdf (accessed October 8, 2009).

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